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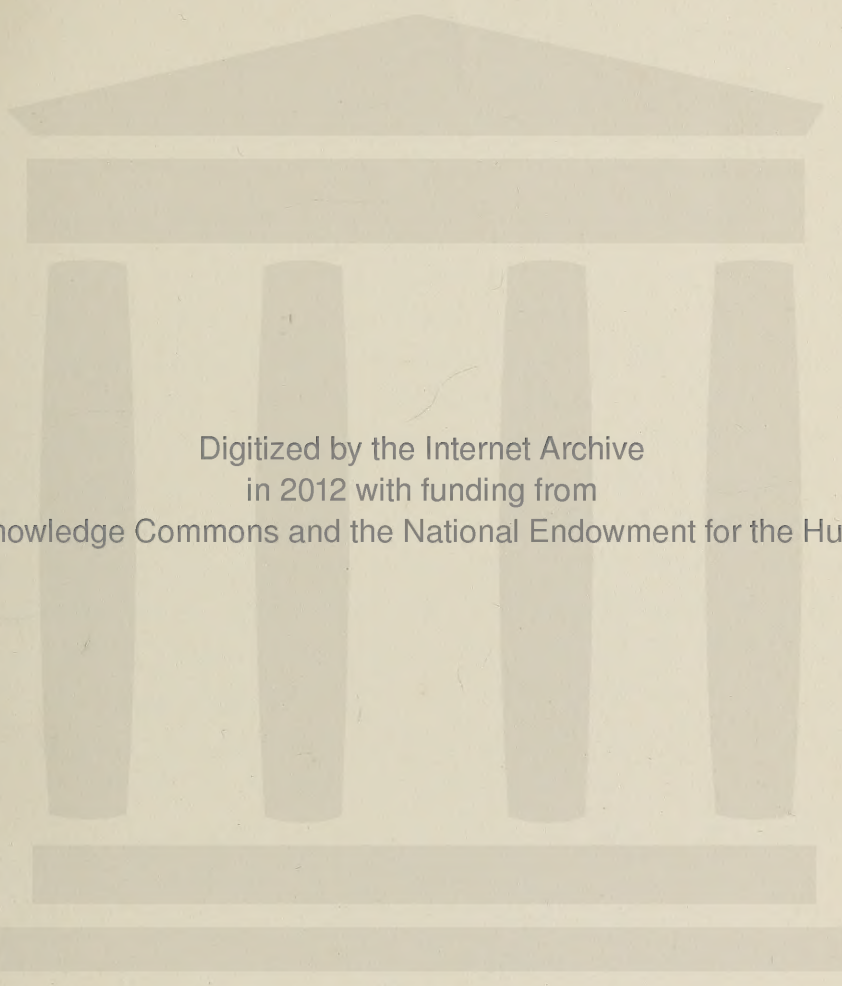












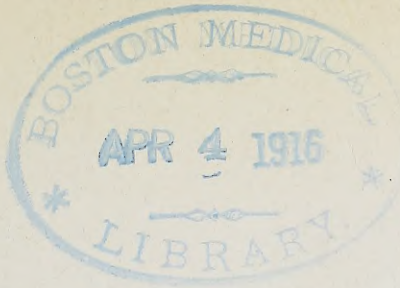
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## AN IMPROVED METHOD OF REMOVING A DIVERTICULUM OF THE URINARY BLADDER\*

By WILLIAM E. LOWER, M. D., F. A. C. S., Cleveland

The difficulty which one encounters in trying to remove the thin wall of a collapsed and adherent tumor, wherever it may be situated, can be appreciated by all who have had it to do. It is especially difficult when the tumor happens to be a diverticulum of the urinary bladder which is situated low down between the bladder and the rectum, as most bladder diverticula are, and which is generally adherent on account of inflammatory conditions. Recently it occurred to me that if the fluid tumor, which collapses as soon as the bladder is opened, could be converted into a solid or semi-solid tumor, the removal of such a diverticulum would be much more easily accomplished.

The procedure in the following case operated at Lakeside Hospital illustrates the method pursued:

The patient was a man 59 years of age, a machinist who complained of difficulty in urination.

*Family History:* Father died from intestinal obstruction; mother living and well; two brothers died of heart disease; four brothers living and well; four sisters living and well.

*Personal History:* Had been married 30 years. Four children living, four stillborn. Had measles and diphtheria in childhood, smallpox at 20. No other infections.

*Genito-urinary:* Had Neisser infection with no complication about 30 years ago.

*Present Illness:* Began about 21½ years before when he first noticed difficulty in starting the stream. At times there would

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\*Read before Clinical and Pathological Section of the Cleveland Academy of Medicine, Dec. 5, 1913.



be a slight interruption of the flow of urine. It took a considerable time to empty his bladder, which symptom had recently become more marked. He says he had not been obliged to hold his urine beyond the usual length of time. He never had either

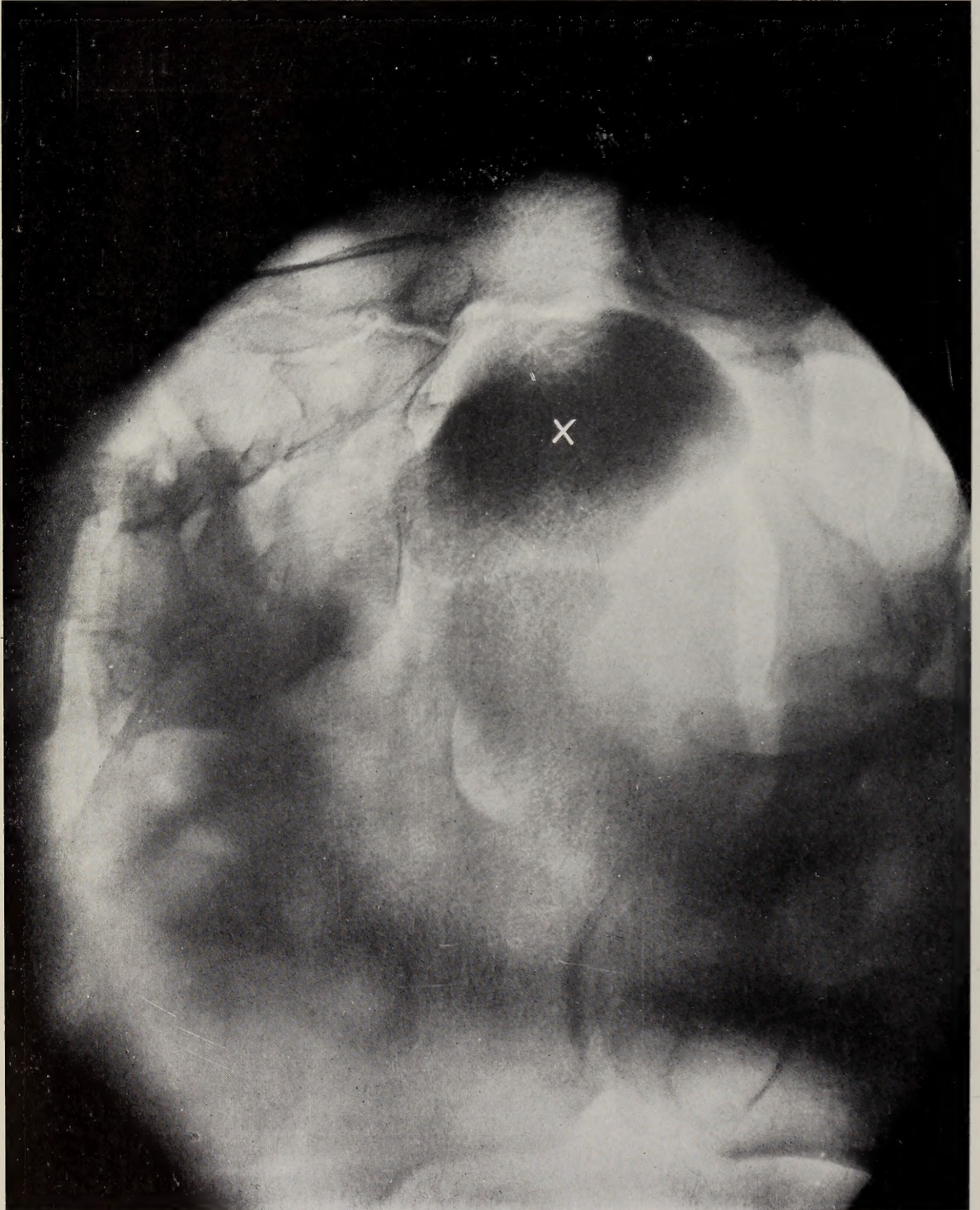


Fig. I. X Represents the Distended Diverticulum



incontinence or retention until about a week before when he had an acute retention and had been obliged to use the catheter ever since.

*Cystoscopic Examination:* Upon introducing the catheter there seemed to be an unusual amount of residual urine. About 300 c. c. of boracic acid solution was inserted into the bladder before the introduction of the cystoscope. The cystoscope passed

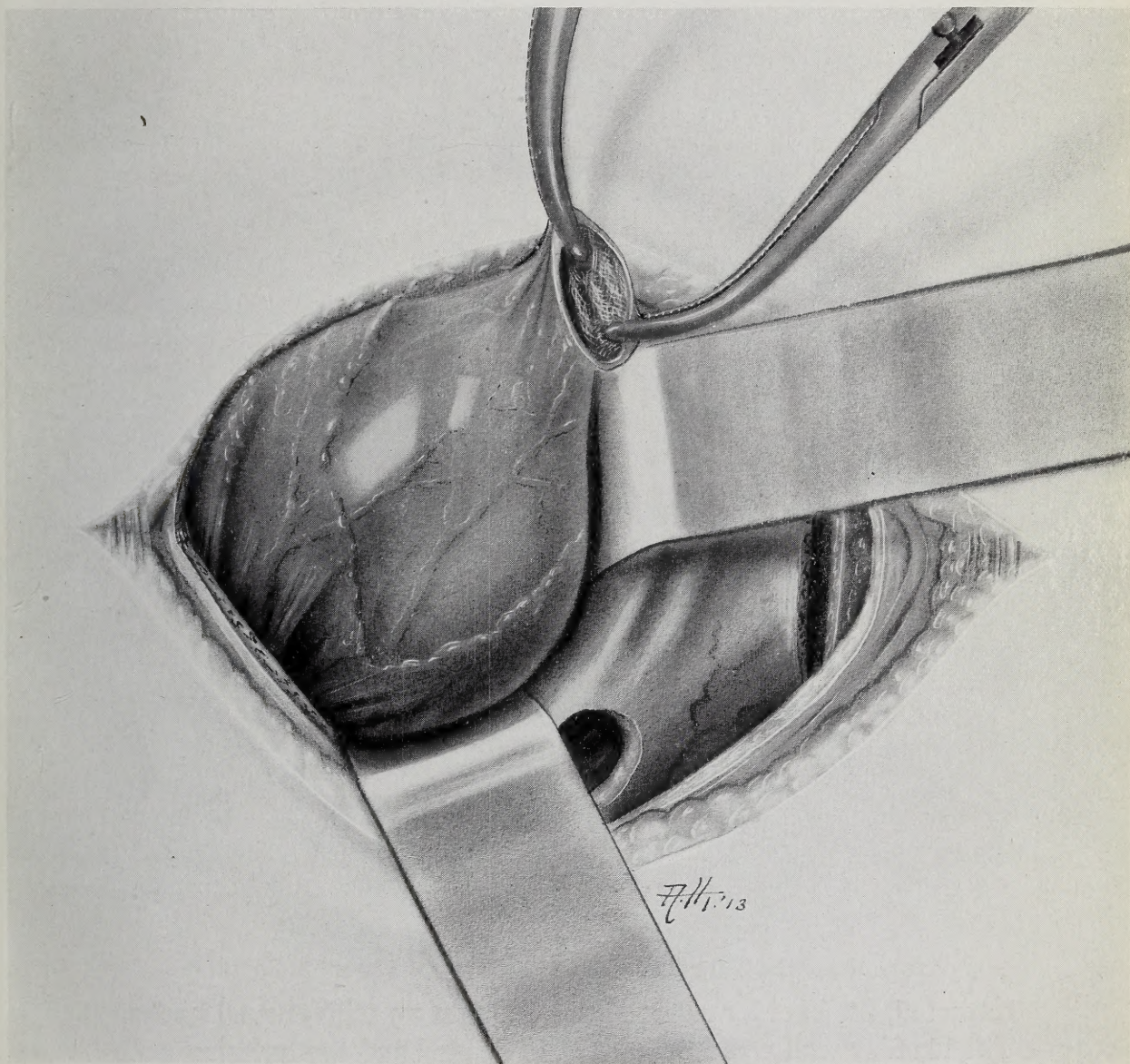


Fig. II. Removal of Diverticulum

readily, the prostate being found somewhat enlarged, with the middle lobe projecting. Situated on the right side in the region of the right ureteral orifice was an opening about the size of a dime, undoubtedly the opening of the diverticulum. To deter-



mine the exact size of the diverticulum the bladder was filled with a 15 per cent collargol solution and the X-ray picture was taken which is shown in the cut (Fig. I).

*Operation under Nitrous Oxide-Oxygen and Novocain Anesthesia:* A transverse incision was made. The fascia was dissected up, the recti muscles were exposed and thoroughly infiltrated with novocain. The muscles were then separated and

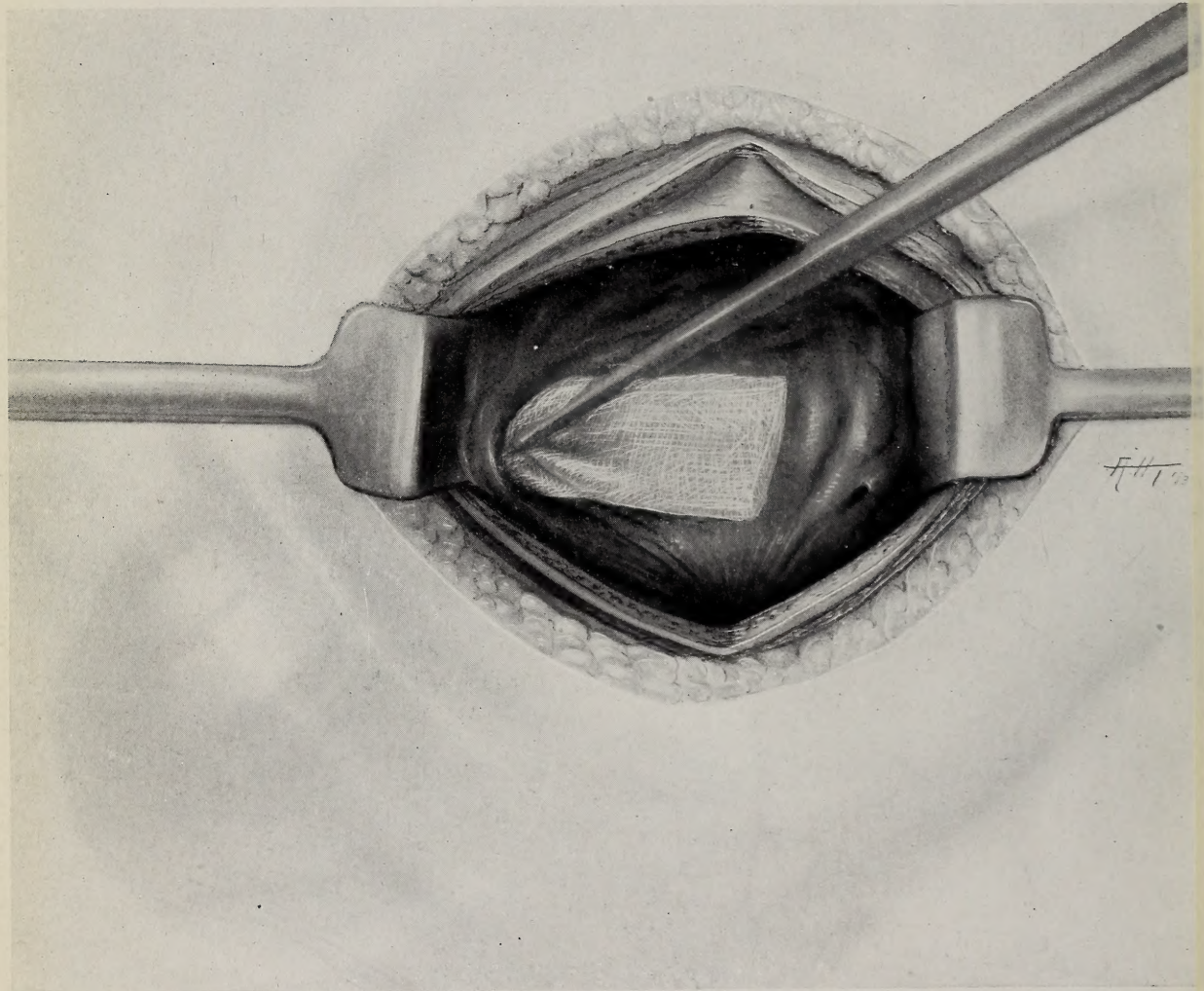


Fig. III. Method of Filling the Diverticulum with Gauze

retracted, the bladder exposed and brought up with curved hooks. The bladder wall was infiltrated and opened and the anterior wall of the bladder exposed with flexible retractors; the bottom of the bladder being thus exposed, the remaining collargol solution could be seen issuing from the opening of the diverticulum. This opening was then packed with one inch strips of gauze, in all about one yard, so that it was converted into a semi-solid tumor, as shown in the cut (Fig. II); with the fingers within the bladder



its upper portion was pulled forward while by careful dissection the bladder was separated from the peritoneum. Twice during the dissection the peritoneum was opened—the first time it was immediately closed and the second time a gauze tape was inserted and the dissection continued between the peritoneum and the bladder wall. With the index finger of the left hand in the



Fig. IV. Division of the Attachment of the Diverticulum

diverticulum opening, the bladder was pulled well forward and slightly to the left so that the neck of the diverticulum was brought into view. This was then divided entirely in order to separate the diverticulum from the bladder (Fig. III). The bladder was then pushed laterally underneath and was held away from the diverticulum by means of flexible retractors. As the right ureter was situated at the opening of the diverticulum, it



was divided by the circular incision. It was necessary therefore, to place a catgut suture around the divided ureter to prevent the escape of urine during the remainder of the operation. The

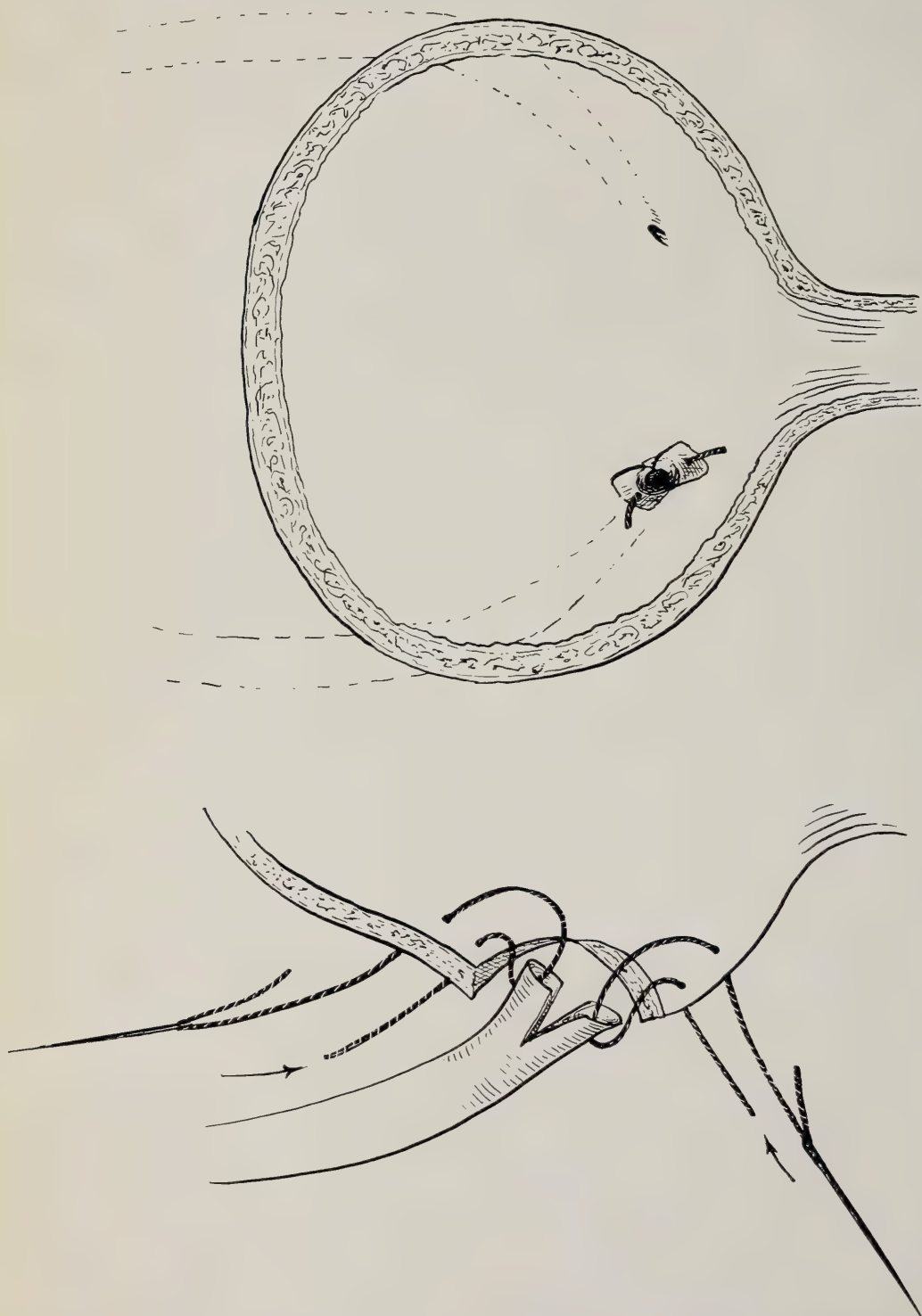


Fig. V. Transplantation of the Divided Ureter

diverticulum which had been converted into a semi-solid tumor by means of the inserted gauze was carefully dissected away from the surrounding structures and removed, (Fig. IV.) When fully



distended its size and shape was about that of a medium size pear. There had been very little hemorrhage. The rectum could be easily recognized and was at no time endangered.

The divided ureter was then transplanted into the bladder through the opening made by resecting the diverticulum (Fig. V). The gauze was removed from the peritoneal cavity and the peritoneum closed with plain catgut sutures. The enlarged prostate with its projecting middle lobe was removed by the infiltration method. A small cigarette drain and a piece of iodoform gauze were inserted outside the bladder into the cavity from which the diverticulum was removed. The fascia was united with chromic catgut and a catheter was placed within the urethra.

The patient has made an uninterrupted recovery without any complications whatever. At present the wound is practically healed and he is voiding urine through the urethra. I have resected diverticula in two other cases, in one of which I brought the diverticulum up through the bladder, while in the other the bladder was divided in the center and the diverticulum dissected out. In this second case I had a great deal of difficulty in detaching the sac, infection followed and there was a slight leakage through the rectum for some time, which eventually ceased. In no previous case, however, have I ever found it so easy to dissect out the diverticulum as in this case, although this one was very large. I believe by this method of procedure it will be comparatively easy to remove diverticula, certainly much easier than it is to remove them when they are not so distended.

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**Publications of the United States Public Health Service.**—The public health service has a number of bulletins available for free distribution. These cover such subjects as: "Sewage-polluted water supplies in relation to infant mortality," "Sanitary advice for summer tourists," "Whooping cough—its nature and prevention," "Antimalarial measures for farmhouses and plantations," "Country schools and rural sanitation," "Pellagra," "The Friedmann treatment for tuberculosis," "The relation of climate to the treatment of pulmonary tuberculosis," "Tuberculosis: Its nature and prevention," "Rules to be observed by tuberculous patients," "Open-air schools for the cure and prevention of tuberculosis," "The citizen and public health," "The classification of market milk," "Pasteurization," "Certified milk and infant milk depots," "Milk and its relation to public health," "Infant feeding," "The chemistry of milk," "Disinfectants, their use and application in the prevention of communicable disease," and kindred matters. Many of these should prove interesting to laymen as well as to physicians and trained nurses. A full list of these bulletins and information on how to obtain them will be sent to all those who will write to Collier's Washington Bureau, 902 Munsey Building, Washington, D. C. This service for Collier's readers is entirely without charge.



## WAYSIDE NOTES OF VISITS TO GERMAN CLINICS IN JUNE, 1912

By GEORGE W. CRILE, M. D., Cleveland

In the summer of 1912 it was the author's privilege to be one of a party of American surgeons—members of the American Society of Clinical Surgery—who visited many of the leading clinics on the continent. These notes of the German clinics which were visited are literally "wayside notes." Sketches as they are, however, it is hoped that these brief glimpses of these German surgeons, whose work is well-known everywhere, may prove of interest.

The first German clinic which was visited by our party was that of Professor Kummell in the Eppendorf Hospital at Hamburg. This is a large hospital built on the pavilion plan, surrounded by extensive grounds with beautiful trees and lawns. It is organized on a military plan: the surgical division containing six hundred beds. There are no specialties in the surgical service.

One point of note in Professor Kummell's treatment is that most laparotomy and hernia cases are allowed to get up and walk about on the second day, the wound being supported by perforated adhesive plaster. He claims that as a result of this treatment his patients are not so weakened as they would be by a protracted lying in bed; that phlebitis and emboli rarely occur and that the early activity does not particularly interfere with the prompt healing of the wound.

In the operating room the management of the reflected light was a novel feature. From a point outside the operating room an intense light was thrown in such a direction as to be reflected by seven different mirrors all focusing on the field of operation, the object being to obviate shadows. This arrangement gives an extremely clear light without heat; casts but little shadow and does away with apparatus in the operating room itself. On the other hand, the few shadows which are cast are quite dark; the field of operation must be a particular point in the room which may not always be convenient; and the light is so bright that it contracts the pupils.

Professor Kummell exhibited anatomical specimens of kidney, which showed the blood supply with remarkable brilliancy. His specimens were prepared by injecting into them the following



solution: Lead oxide 100, liquid paraffine 136, and oil of turpentine 60.

Of special interest was Professor Kummell's demonstration of his method of administering ether anesthesia intravenously. Before beginning the administration of ether the patient was given a small dose of scopolamin after which salt solution containing five per cent of ether was infused into a vein. The patient was completely anesthetized in about five minutes and remained very quiet throughout the operation—a nephrectomy. During the operation the ether-salt solution was given as needed to hold the patient under anesthesia. Professor Kummell stated that the advantage of this method of anesthetizing was that the ether depressed the patient less than when given by inhalation, and he asserted further that by this means he had fewer cases of pneumonia. Certain objections which might be suggested against this technique are that it involves making a new wound and so opens a possibility of infection; that it requires the introduction of a considerable amount of salt solution even when there is no other indication for its use: and it is not so readily controlled as inhalation anesthesia.

At Berlin, the old von Bergmann clinic, now that of Professor Bier, was visited and a long series of cases were operated upon, in each of which some one point at least in the technique was of peculiar interest.

In a gastro-enterostomy for pyloric obstruction, both the stomach and intestines were opened with the thermo-cautery, a procedure which was seen at no other clinic. Silk ligatures were used throughout with Lambert's through and through stitches including all the coats. The technique was well carried out, but one at least of the spectators raised the question as to whether or not a small percentage would have severe post-operative hemorrhage if no further precaution were used.

A case which from the symptoms and X-ray examination had been diagnosed as gastric ulcer showed an intact stomach. During the operation a Rovsing diaphanoscopic illumination was used to further the diagnosis. This case illustrates two most important facts: first, that even after the most thorough gastric examinations diagnosis may fail; and second, that the diaphanoscopic observations are of only relative accuracy.

An ununited fracture of the humerus was operated under local



anesthesia aided by narcotics. Before being brought to the operating room the patient had been given morphia and scopolamin. The brachial plexus was blocked above the clavicle by means of a large injection of a one-half percent solution of novocain; the injection being made through a long needle which was inserted just above the clavicle and pointed toward the brachial plexus until the patient complained of a shooting pain down the arm—when it was believed that the plexus had been located. Professor Bier stated that no harm could result even if the needle penetrated the subclavian vein or artery. The operation itself consisted in exposing the ends of the bone, sawing them off and uniting them by bronze wire passed through perforations made by an electric drill. Although the patient felt no pain, she was made nervous by the sound of the sawing. The nervous suffering thus caused is a useful hint as to one limitation to the use of local anesthesia alone.

A nephrectomy for stone with pyonephrosis was performed in the usual way, under general anesthesia with ether.

The administration of lumbar anesthesia was demonstrated by Professor Bier as follows, the operation being the Kraske operation for removal of cancer of the rectum. The patient sat on the table, slightly bent forwards, with his feet hanging down. 1. A sterile towel was stretched across the back from crest to crest. 2. Iodin was painted over the skin at the chosen point. 3. A nick in the skin was made with a scalpel. 4. The spinal needle was introduced until spinal fluid was seen. 5. Some spinal fluid was drawn out and mixed with the anesthetic—novocain. 6. The mixture of spinal fluid and anesthetic was injected. 7. The patient assumed the supine position as soon as the injection was complete. 8. The progress of the anesthetic was tested by examining the abdominal reflexes. As the anesthesia progressed too slowly, the patient was placed in the head-down position until the anesthesia was complete, when the horizontal position was resumed. In the technique of the painless operation, which was then performed, one point was worthy of special note. The tumor was widely excised, the sphincter being left at the distal end. The sphincter was then stretched, its mucous membrane excised and the proximal end drawn through the distal segment and stitched fast to the anus.

In the seventh case which was exhibited—necrosis of the tibia—venous anesthesia was employed. An Esmarch bandage was



applied to the upper part of the thigh and the local field sterilized with iodine. A second Esmarch bandage was then placed around the leg below the field of operation. A vein in one side of the knee was opened and canula tied in it; through this 100 c. c. of a one-half per cent solution of novocain was injected from a large syringe. The patient was entirely free from pain throughout the extensive radical operation. At the close of the operation, salt solution was washed through the canula before it was removed from the vein. Professor Bier has had no cases of poisoning, of phlebitis, nor of embolus as a result of this technique.

In Berlin, we also visited clinics conducted by Professor Hildebrandt, Franks, Koerte, and Krause. Many interesting cases were shown. One point of special note in Professor Frank's clinic was that white cotton gloves were worn over the rubber gloves while making the skin incision, a technical detail which could well be used also in operations on bones, as the cotton gloves would protect the rubber gloves from being torn. In some of these clinics all of the assistant surgeons wore masks although the operator himself did not. Spinal and local anesthesia were used for the most part. Professor Koerte stated that in his opinion the Germans consumed so much alcohol that ether was not available.

One of the cases seen in Professor Krause's clinic was an excision of the Gasserian ganglion in the course of which he demonstrated the probability of local paralysis resulting from this operation because the brain is elevated with too steady retraction, the resulting anemia causing the paralysis.

At Leipsic, Professor Payr gave a long clinic for the visitors from which they gathered many valuable points. He is a strong man, possessed of an intense energy by means of which he manages efficiently a service of six hundred beds. In the wards he showed a simple apparatus which makes possible passive movements of the joints and which is controlled by the patients themselves.

Professor Payr agrees with Professor Koerte of Berlin as to the advisability of the excision of the gall bladder rather than mere drainage. Professor Payr presented a reconstruction of the esophagus for the relief of stricture. A portion of the jejunum was divided and carried up under the skin of the anterior abdominal wall. The jejunum was anastomosed with the



stomach. A strip of skin from the upper end of the jejunum was then fashioned into a tube by suturing the divided borders together and suturing the skin over it. The upper portion of the esophagus was then sutured to this subcutaneous "skin esophagus." When the patient swallowed one could see clearly the bolus passing down to the stomach. The most difficult part of the operation was joining the normal esophagus to the upper end of the "skin esophagus." One of the minor drawbacks to the operation was the fact that when the patient swallowed seeds they tickled the skin. An echinococcus cyst, which had entered the pleural cavity was shown. In Graves' disease, Professor Payr ligates three or four arteries.

He demonstrated a cauda equina anesthesia with novocain in the following solution: Sodium Chloride, .1; Sodium Bicarb, 1.5; Adrenalin, gtt., .4; Novocain, .6.

The patient sat on the end of the table and the solution was given from below upward, the needle passing into the sacral canal. Quite a quantity of the solution was injected and as a result the area of the anus was completely anesthetized. The patient read a book while the operation was performed.

The following points in Professor Payr's operation for immobilization of ankylosed knee joints are worthy of note.

1. Iodin Preparation.
2. No tourniquet is used.
3. Knee-joint is exposed through an external incision which starts well above and extends well below the patella, completely exposing it.
4. Silk ligatures only are used.
5. The patella is entirely separated from adhesions and is freely mobilized.
6. At the insertion in the tibia of the ligamentum patellae a morticed piece of bone is sawed out and detached with the chisel. This includes the point of attachment of the ligament. Great care in haemastasis is exercised.
7. The entire internal structure of the knee is dissected out freely, strong knives being used.
8. The lower end of the femur and the articular surface of the tibia are sawn off with Payr's saw.
9. A large flap of fascia is taken from the external aspect of the thigh; is separated, drawn beneath the zone of intact skin and interposed between the ends of the bones in the knee joint.



10. The fascia is sewed in place at various points with interrupted stitches, the patella is then turned back and the wedge-shaped piece of bone inserted into the mortice. The wound is then closed.

11. At the end of a week massage is begun.

12. Patients under fourteen years of age are not thus operated.

13. Fascia is used between joints.

14. The patient makes his own passive motions.

15. The after treatment of the muscles and joints must continue for from four to six months.

At Leipsic, the new Haeckel Museum is of interest. This is not intended to be a general museum but to present evidences of evolution. It is well worth a visit and in the future will be of undoubted and increasing value.

At Jena, Professor Loxor, one of the best European surgeons, exhibited brilliant examples of plastic surgery. He made a new face for a patient disfigured by a burn, devising a mustache and even an imperial from his hair. For the cure of hare-lip, he transplanted mucous membrane from the lower lip. He showed cases of sutured blood vessels and a transplantation of the saphenous vein. In a case of brain abscess, he filled in the brain cavity with fat transplanted from the abdominal wall. He used fat for repairing face defects, and boiled ox-horn for filling defects in bones such as pseudarthrosis.

Loxor cures Dupuytren's contraction of the hand by dissecting out the cicatricial tissue along with the skin and fascia, and then transplanting new skin. He showed many cases of tendon transplantation and one case in which the entire knee joint had been transplanted from a cadaver, a fair degree of motion resulting. It might be questioned whether this procedure gives better results than arthroplasty, but if the bone is absent this is after all the only way in which the loss can be made good. The success of the transplantation depends in some degree upon the freshness of the bone. He told us of one case of successful transplantation in a Hebrew. In spite of the success of the operation however, the patient was very much dissatisfied because Christian bone had been used and he feared confusion in the hereafter. This dread so preyed upon his mind that amputation was finally performed.

At Vienna the travellers were indebted to Professors Hoch-

enegg, Schauta, Von Eiselsberg, Zukerkandel, and Wertheim for full clinics of varied interest. Professor Hochenegg in operating for cancer of the rectum modified the Kraske method by making a lower line of excision, thus saving more of the nerves and muscles. The anterior anus was placed in the perineum. He presented his statistics of 240 private and 231 clinical cases of cancer of the rectum—the largest series extant by an individual surgeon. The immediate mortality of private cases was 9 per cent; of clinical cases 17 per cent; the total cures were 20 per cent.

In the technique of the operation, Professor Hochenegg took great care with the asepsis. He first closed the anus with a purse string suture and during the dissection preserved careful haemastasis. He laid particular stress on the importance of preventing any kink in the rectum. The bowel was well immobilized so that it came down and out very freely. The skin was carefully sutured to the edges of the rectum, after which a tube was inserted in the rectum and secured by a suture. He resected two sacral vertebrae, chipping the edges of the bone in order to save the ligaments. The demonstration of the operation for cancer of the rectum was followed by the presentation of many cases cured for varying periods of time up to twenty-five years. In most of the cases the anus was placed well up in the sacrum, so that with the patient in the knee-chest position the anus presented at the end of the spine and upward. Professor Hochenegg has devised an obturator apparatus whereby the patient is given mechanical control of his stools. This consists of a flat piece of leather from which a rubber projection extends into the new anal opening. This is held in place by straps and an abdominal band. That the obturator may fit closely, it is molded over a plaster cast of the anal opening and the surrounding parts. Sacral hernia may be one unfavorable result of the operation. One of Professor Hochenegg's patients died from strangulation of a sacral hernia; and one patient was shown in whom the sacral hernia was as large as a child's head. Professor Hochenegg stated that these hernia do not occur in the bowel but in the scar and in the lateral fields of connective tissue.

Incidentally Doctor Ochsner, in discussing cancer of the intestine made a very useful suggestion for those cases in which the cancer is situated too high up: 1. Do a Lane's anastomosis of the ileum to the sigmoid. 2. Excise the cancer including a



very considerable amount of the intestine. 3. Bring the proximal end of the resected bowel up to the skin through a small inter-muscular incision. This method will provide for a normal bowel movement and at the point of the artificial anus there will be but little mucous discharge.

Professor Hochenegg presented also a most interesting case of inoperable cancer of the stomach in which an unsuccessful attempt at excision had been made. The wound was left wide open and the cancer treated with the X-ray, complete cure resulting.

At the Frauen Klinik in Vienna, Professor Schauta demonstrated the Schuchart operation for cancer of the uterus. In this operation he approached the cancer by the vaginal route in the following manner: A very wide incision was made laterally passing through the entire perineal body down along the side of the anus; the mucous membrane of the vagina was divided circularly about ten inches below the cul de sac and was then dissected so as to give a circular flap of free membrane. A sponge was put in against the cervix, over which there were inserted long strands of heavy silk. These strands of heavy silk inserted closely together isolated the field of the cancer and served as tractors whereby the uterus could be drawn down and its position controlled throughout the dissection. The dissection was carried up laterally until the uterus was exposed on each side. The parametrium was then dissected out from below as in Wertheim's operation. The bladder and rectum were closely dissected out, the cul de sac being then opened. The ovaries were not removed. The perineum was closed with interrupted stitches. His statistics of this operation showed a primary mortality of 5 per cent; while 20 per cent of his cases had been cured. This operation made a favorable impression upon the author, for certainly the combination of the vaginal dissection and the deep perineal division gave a splendid approach.

Professor Von Eiselsberg presented a long series of operations and of clinical cases.

1. *Removal of a brain tumor.* Two weeks previously a preliminary operation had been made by a plastic operation on the skull. The osteo-plastic flap was well turned back and the tumor shelled out. A flap of fascia was then transplanted to the brain to cover the defect left by the excised dura.

2. *Thyroidectomy.* This was performed under local anes-

thesia with but little pain. Unfortunately however the thyroid proved to be malignant.

3. *Operation on the hypophysis.* The nose was divided at the bridge and deflected to one side. The nasal processes at the base of the nose were removed. The bone was then nibbled away until the hypophysis cut was exposed.

4. *Operation for hernia.* The operation was performed under novocain with apparently no pain.

5. *Fracture of the femur near the knee.* A long and strong drill pierced the femur just above the knee joint. This drill had a perforation at each end through which wires were passed, so that it served as an extension apparatus. The patient complained of almost no pain during the extension. Professor Von Eiselsberg claims that no skin infection occurs after this operation.

6. *Gastroenterostomy* in which the following points were especially noted: a. The posterior no-loop operation was performed. b. Continuous silk sutures were used over both the mucosa and serosa. c. A number of interrupted stitches were used to reinforce the continuous sutures. d. Round curved needles and a needle holder were used. The operator stated that he always tried to place the loop in isoperistalsis.

A useful device in this operating room was a little stand heated by electricity for the sterilization of instruments.

Among the many clinical cases those of especial interest included a patient operated five years before for hypophyseal tumor. This patient had fat and flabby hands, the eyesight was impaired and there was exophthalmos.

Another patient from whom a brain tumor, tuberculoma, had been removed, was still unsteady and not normal.

Professor Von Eiselsberg has performed over four hundred operations for gastric and duodenal ulcer. A valuable suggestion was gained from his treatment of patients who were starving and too much reduced to endure a gastro-enterostomy. In such cases under local anesthesia a coil of the jejunum is brought up to the skin and a little tube tied into it. Through this tube the patient is fed for a period of six months, thus giving the stomach a complete rest. Professor Von Eiselsberg had treated 29 cases in this way and he presented a number of cured patients who were apparently normal. He considers that gastro-enterostomy is useful in about 40 per cent of the cases of ulcer of the stomach.



He showed some excellent results of plastic operations to correct large defects of the face. A method for making a nose was to turn up a flap from the abdominal wall to the forearm for six weeks; the flap being then removed to the face for six weeks, after which it was turned upon itself and made a nose.

Professor Biedl gave an excellent symposium on internal secretions in which he strongly supported the surgical treatment of Graves' disease. In the Van Noorden clinic cases of Graves' are referred to the surgical clinic as a routine.

Munich was not only the most beautiful city visited by the Society of Clinical Surgery, but in this city was visited the most complete and perfect medical building ever seen by the author. This was the Polyklinik in which 50,000 patients are treated annually. In this hospital are ten X-ray plants. It was built by the state and city, the cost of the building beings 4,500,000 marks. Here we met Professor Frederick Mueller, one of the most delightful and inspiring medical teachers in the world. In his lectures he uses objective methods; for example, his students are required to support a column of water whose weight is equal to the force of a heart-beat. Professor Mueller has a service of 300 beds.

At Stuttgart in the Karl Olga Spital containing 120 beds, Professor Hofmeister gave a clinic including one operation for thoracic goitre under local anesthesia—novocain. Morphia and scopolamin and epinephrin aided the anesthetic. Silk sutures were used. For cancer of the rectum he operated as follows: The first incision was carried in the mid-line down the posterior sheath which was divided transversely, including the peritoneum in the division. The upper edge of the transverse division of the sheath was stretched straight across to the posterior abdominal wall to the peritoneum, thus closing off the upper peritoneal cavity from the field of operation—a procedure which served to hold the intestine well out of the way. He then tied the hypogastric artery. The glands were taken out, the patient turned, and a Kraske operation performed; when he had removed the entire cancer, he spread a large piece of iodoform gauze over the external wound in the perineum and pressed into the pelvis a large perforated glass tube carrying a Mikulicz' tampon. Around this he packed large pieces of gauze filling the entire cavity made by the operation. Tincture of iodine was applied over the wound.

At this clinic Professor Hofmeister also operated for gastric

ulcer, making, as do practically all German surgeons, a complete resection of the portion of the stomach containing the ulcer. The operation was for a hard ulcer near the pylorus. The stomach was grasped between two clamps. The stomach was then divided and the upper half of the divided wall was closed with catgut suture and linen. The pylorus was excised and a gastro-jejunostomy performed using the lower half of the divided stomach for the stoma. When this was completed he continued the jejunum by suturing so as to cover the divided ends of the stomach. Finally over the whole line of sutures he sutured the mesocolon.

At Tubigen, Professor Perthes showed a method of blocking the large nerve trunk in arm and thigh amputations. For injecting the anesthetic he used a large needle which was attached to a small battery. With this he first injected a local anesthetic in the skin and down as near as possible to the large nerve trunks. In this case—an arm amputation—he passed down the needle close to the clavicle and felt for the plexus. A gentle current was turned on and when the needle point was near the plexus the muscles contracted. In this way he guided the needle till it actually touched the nerve trunk, when novocain was injected directly into the nerve.

In a case of abscess in the head of the tibia, he operated as follows: He first made the usual skin incision and sawed the healthy bone toward the knee till he was certain he had passed over the focus of the osteomyelitis, when he turned up a long skin flap as one turns up an osteoplastic flap of skull. The focus was then cleaned out with a chisel in the usual manner, the cavity being filled with Mosetig's iodoform mass. The bone flap was turned back and nailed down without drainage. The nail was driven straight through the skin. That perfect results were secured by this operation was shown by the X-rays of patients taken several years afterwards.

Professor Perthes operated for flatfoot by carrying the tendon of the peroneus longus down under the plantar fascia across the foot to the opposite malleolus through which he bored a hole. The tendon was threaded through this hole and firmly fastened. He showed us one post-operative case in which good results had followed this procedure. For flat foot resulting from a definite break in the arch he operated by sawing a wedge-shaped piece of bone out of the calcaneum; he then chiseled through the



outer aspect of the calcaneum and forced the wedge of bone into this incision. He showed cases in which he had overcome a drooping of the eye after resection of the upper jaw by transplanting cartilage from the ribs. The results were very satisfactory though diplopia was present in one case.

Five cases were shown who had had Wilm's operation for tuberculosis. Under local anesthesia an extensive resection had been made of the ribs on one side, both anteriorly and posteriorly. This procedure immobilized the lung on that side. X-ray pictures seemed to show that these five patients had improved since that operation.

In cases of lung abscess Professor Perthes gives morphia and scopolamin 24 hours before operating for the purpose of minimizing cough and allowing the cavity to fill with pus as the abscess can then be more easily found. When the abscess has been located with a needle, it is punctured with the thermo-cautery and the cavity is filled with iodoform paste.

In brain operations he fills in defects of the dura with peritoneum. His operation of choice for gall bladder is cholecystectomy. In demonstrating his method of performing this operation he made a median incision from the ensiform down to a point near the umbilicus and a transverse incision extending well over to the lateral border. When this transverse incision reached the superficial fascia he inserted two rows of stitches between which he made the division of the rectus muscles, the object of this maneuver being to keep the rectus muscle from contracting. The rectus was divided transversely and the internal and external oblique muscles were separated as in McBurney's method. The peritoneum was divided transversely and the exposure was excellent. By this technique the gall bladder is reached without the division of any nerve trunks.

He operated for colloid goiter under novocain anesthesia aided by pantopon and scopolamin but the patient made some demonstration showing that the anesthesia was insufficient.

At Heidelberg Professor Wilms reported that he found that goiter would not follow the use of water from certain goiter wells if the water was boiled or heated to 60 to 70 degrees Fahrenheit. He demonstrated three operations for tuberculosis of the lungs—for chronic tuberculosis; for hemorrhage; for lung abscess. In cases of lung abscess he sometimes excises the lobe.

He performed a prostatectomy under local anesthesia. The

pelvic plexus was blocked by injecting on each side 20 c. c. of 2 per cent novocain to the pudic nerve. The Young tractor was then introduced and a lateral incision was made as in Young's operation, not penetrating the perineum. He then introduced a drain tube into the bladder and packed around it.

In a case of congenital hip in which there was no acetabulum he made one by exposing the area, turning up some periosteum and curetting. He repaired an intra-capsular fracture by driving a nail through the head of the bone into the pelvis. He showed a few cases who could walk.

He reconstructed the common duct by dissecting up the constricted portion of the duct and making a resection, a rubber tube being then introduced into the proximal end and carried into the duodenum. The tube is left in place until it passes. Sometimes it remains for six months, the new duct around the tube apparently retaining its permeability. The tube is sewed in place with linen.

In tuberculosis of the joints in children he uses heavy single X-ray treatments at two week intervals. He stated that he could sometimes cure such cases by X-ray alone.

At Wurzenburg, Professor Enderlin presented a goitre map showing that the goitre district in Europe followed the drainage of certain regions. He presented beautiful results secured by transplanting the pinna of an ear to make a new flap for the nose. In correcting a case of flat foot he introduced a piece of fascia which he attached to the tibia, extended down to the schaphoid and attached there. He exhibited also a case in which the deformity caused by the resection of the lower jaw had been corrected by the transplantation of a rib. He reported a case in which he had opened the femoral artery, removed a thrombus and sutured it again—the patient making a local recovery but dying later from endocarditis.

For prolapse of the rectum he uses the lateral anastomosis of the sigmoid upon itself.

At Frankfort on the Main, Professor Rheim was visited. The entire hospital and the children's ward especially are better arranged for the comfort of the patient than any of the others visited. A pleasing feature in the children's ward was the fresco of child stories. Of greatest interest here, however, were the methods of research and diagnosis.

In discussing salvarsan Professor Ehrlich—an extremely



simple, but most brilliant man—said that when symptoms of salvarsan poisoning occurred, observations as to cerebrospinal pressure should be made. Deaths from salvarsan poisoning are due to edema of the brain. One should therefore do a decompression if any evidence of edema of the brain is present.

Professor Rheim gave a dinner to the visitors at which Professor Ehrlich spoke delightfully.

At Bonn Professor Garre showed a remarkable collection of models and pathological specimens for teaching purposes. He presented a case in which a bone cavity was filled with fresh fat. In this clinic Pearsoll's silk is used throughout.

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The German hospitals are better organized than are those in any other country. They have an almost military character, all clinics being under a single head. The number of surgical beds ranges from 125 to 600, so that energetic, capable men are given real opportunities for work. In connection with the clinical work, many experimental researches are carried on in every hospital. While it may be true that American clinics equal, or possibly excel the German in the care and consideration which is given the individual patient, the German clinics excel in organization and research. The American surgeon is most vitally concerned with the patient immediately in his charge—the German is working for the welfare of the future patient.

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**Sea View—The new Tuberculosis Hospital.**—With the dedication of Sea View, the new four million dollar tuberculosis hospital for New York City at Castleton Corners, Staten Island, a significant institution began its career. For in point of equipment, capacity, and management, the hospital is hardly second even to the famous hospitals of Europe. This was the opinion of speakers at the recent dedication who had studied the European institutions.

Sea View is completely equipped as a general hospital and could be used as such at a moment's notice. The plant includes twenty buildings, for service as wards, surgical and pathological purposes, and for administration.

No effort has been spared to make the hospital complete, comfortable, and beautiful. 1,100 patients can be accommodated at one time. Doctor E. S. McSweeney is superintendent.

The cases received at Sea View will not be patients of the vagrant type. These will be cared for as heretofore in special hospitals or at Blackwell's Island.

Sea View aims rather to meet the needs of an intermediate class, higher in the social scale, self-respecting, who would not mingle with the vagrant class, yet who require assistance in securing medical care and treatment. The hospital is thus unique in its intermediate position and will bridge the wide and serious gap between costly sanatoria and purely charitable institutions. Incurable as well as curable cases will be received. Cases will be segregated and assigned by the Tuberculosis Hospital Admission Bureau.—*The Survey*.

## THE ROENTGEN DIAGNOSIS OF LESIONS IN THE REGION OF THE MEDIASTINUM.

By GEORGE F. THOMAS, M. D., Cleveland

The prominent symptoms of disease in the region of the mediastinum are those produced by pressure. This is true in the early as well as the more advanced stages of all lesions commonly found in this space. Although in some instances, the process may be quite advanced before the symptoms become of sufficient importance to cause the patient to seek medical advice, it is more often true that patients will present themselves with suggestive symptoms at a time too early for the physician to determine the nature of the cause; frequently before he can even determine the presence of a cause, by physical examination. In many of these cases, a competent X-ray examination will save the physician from an incomplete or incorrect diagnosis.

The symptoms that indicate mediastinal investigation are; (1) Feeling of oppression, or sense of weight or pressure on the chest. (2) Dyspnea. (3) Dysphagia. (4) Pain anywhere in the region of the mediastinum, or pains radiating to shoulders, arms, sides of the chest, or upper abdomen. (5) Tickling in the throat, cough or inability to cough. (6) Aphonia or hoarseness due to complete or partial paralysis of the vocal cords. (7) Enlargement of the veins of the face and neck. (8) Unilateral flushing of the face or unilateral dilatation of the pupils. (9) Tachycardia or bradycardia. Any one or any combination of the above symptoms should arouse suspicion of a mediastinal lesion as the cause unless there is definite evidence to the contrary. They may be the indications of pressure on the structures adjacent to the mediastinum, or on the contents of the mediastinum.

The X-ray examination must be thorough. Although in many cases, a simple antero-posterior, or postero-anterior, radiograph will present enough information upon which to make an accurate diagnosis, in some of them it is necessary to make a fluoroscopic examination in addition to the radiographs from the different angles, including the oblique through the left posterior right anterior. Instantaneous screen plates are of great value because of their sharp outlines. Visualization of the esophagus with bismuth may often be of service.

In the examination, the position of the mediastinum in



general, and of the heart in particular should be observed. The heart shadow in addition to being displaced with the mediastinum may show rotation of the base to the right and downward, or to the left. The apex, though moved with the mediastinum is not usually displaced in reference to it. The shape and size of the heart should be noted; and also the outline of the aorta, the position and appearance of the trachea, and the width of the superior mediastinal shadow. All of the above points may need be considered in the differential X-ray diagnosis. They may be the result of conditions within or without the mediastinum, the normal position of which depends on the maintenance of a normal tension in both sides of the thorax and a normal equilibrium between the intrathoracic tension and the intraabdominal pressure, the latter of which varies according to the tone of the abdominal muscles and the amount of intraabdominal contents, e. g. abnormal fat, tumors, or fluid or gas either inside or outside the gastro-intestinal tract.

In cases of general visceroptosis, the diaphragm is low and the heart assumes a vertical position in the median line. This condition is frequently to be noted in thin people with long narrow chests. In very corpulent individuals the opposite condition may be noted, the heart assuming a more transverse position than normal, due to mechanical elevation of the diaphragm from intraabdominal pressure. I think this mechanical intrusion upon the lung space accounts to a great extent for the extreme shortness of breath noticed in very fat people.

Further causes of displacement of the mediastinum other than that of congenital situs transversus and that due to deformities of the chest are; Pleural effusions, adhesions, compensatory emphysema, pneumothorax and lung tumors. In this connection it is interesting to note the great reliance placed on displacement of the heart as a sign of pleural effusion, when we consider that in many cases the heart is not displaced away from the involved side; even in some cases being pulled over into the shadow of the effusion by the contraction of old adhesions.

In regard to the displacement due to pneumothorax, I recall two interesting cases in one of which the pneumothorax was centrally confined by adhesions between the median border of the collapsed right lung and the mediastinum, with the mediastinum so markedly displaced to the left that the radiograph showed a very detailed picture of the dorsal

spine, unobstructed by the cardiac shadow. In the other case, the pneumothorax was situated externally on the left side, the heart was displaced markedly to the right, the left diaphragm was markedly depressed and the affected area gave a dull note upon percussion.

The downward displacement of the base of the heart due to the presence of mediastinal growths or aneurisms is of course well recognized. I think however that I have never seen any reference to the significance of a transverse heart not accounted for by the above mentioned causes, or by increased intraabdominal pressure. I have noticed that the heart assumes a horizontal position in some cases where dilatation of the aorta is present, and furthermore in some cases where a clinical diagnosis of aortitis is justifiable, but in which the radiograph does not show aortic dilatation. In one of these cases, which presented as usual a positive Wasserman reaction, antiluetic treatment was accompanied by a relief of symptoms, and subsequent radiographs showed a return of the heart to nearly the normal angle. It seems therefore that in the absence of other demonstrable causes, the rotation downward of the base of the heart is evidence of lengthening of the aorta, the result of aortitis. When associated with dyspnea and pain, the diagnosis of aortitis is indicated.

In the diagnosis of lesions of the heart, the chief value of the X-ray is to show definitely the size and shape of the heart. The relative prominence of the shadow of the left auricle and of the right heart is of some importance in indicating the presence of valvular insufficiency. With the screen the character of the cardiac pulsation is observable. This may at times help to differentiate between pericardial effusion and dilatation of the heart, the differential diagnosis between which is usually easy with the X-ray.

In a couple of cases, I have been able to see definitely the outline of the heart shadow within the shadow of the surrounding effusion. In one of the most marked of these cases, the fact that the cardio-hepatic angle, though displaced markedly to the right, was not altered or made less acute than normal, was of great interest to me. In certain cases of chronic pericarditis, the thickening of the pericardium and the density of the fibrinous exudate render impossible the differentiation of the cardiac shadow. In these cases, the evidence of adhesions and inflammatory thickening in the surrounding tissues is of value. These



findings together with the physical findings indicating impeded heart action, especially during sustained deep inspiration, should clear up the diagnosis.

The recognition of aneurism is as a rule a simple procedure. The presence of a definite, regular clean-cut outline, which can be demonstrated as continuous with the aortic shadow is unmistakable, and there is no further difficulty. But there are a good number of cases where the diagnosis is not so easy.

It may be necessary then to make examination in the oblique positions before one can eliminate the diagnosis of aneurism. This will occasionally demonstrate an enlargement otherwise not shown. In practically all cases of aneurism the base of the heart is displaced downward. When this displacement is not present, the diagnosis of aneurism must be guarded. When it is present, and the large shadow above does not present sufficient characteristics to positively indicate aneurism, the sign is of value, although tumors and abscesses may occasionally produce similar displacement.

I have frequently noticed in chest plates, a peculiar bulging of the aortic arch to the left due to the tipping or rotation of the transverse aorta. This is marked enough in some cases to cause some hesitation in stating that a localized saccular aneurism is not present. In these cases a careful examination of the plate or of a stereoscopic pair will demonstrate that the ascending aorta is displaced to the left and forward, thus rotating the arch in a horizontal plane to a more antero-posterior position and tipping the apex of the arch to the left of the descending portion.

This condition may be produced by the contraction of adhesions surrounding the mediastinum, or by pressure from a tumor or enlarged mediastinal glands. I have seen it in some cases where I could not determine any cause.

In the examination of aneurism, it is of interest to determine what portion of, and to what extent the aorta is involved, and to observe the pressure effects upon the trachea and esophagus, the latter points being of obvious value as an indication of treatment and prognosis. In this connection, it may be mentioned that dysphagia may indicate aneurism, and that the stomach tube should not be passed until the possibility of aneurism is eliminated.

The differential diagnosis between aneurism, mediastinal tumor and a pulsating mediastinal abscess is often impossible

from the clinical history and the physical examination alone. In most of these cases, the X-ray examination will help determine the diagnosis. As a rule, the shadow of the aorta can be definitely distinguished through the tumor mass. If not, then one must depend upon the character of the outline of the shadow under inspection, upon the nature of the cardiac displacement in reference to the size and position of the tumor shadow and upon the fluoroscopic observation regarding pulsation. An irregular, hazy border instead of a sharp fairly regular outline; a lateral or downward displacement of the heart rather than a rotation of the base downward; the presence of a pleural effusion; are indications in favor of a mediastinal tumor. On examination of the bismuth filled esophagus, the presence of a primary esophageal carcinoma may be shown with the characteristic irregular compression of the lumen. In aneurism the esophageal pressure is usually most marked at the level of the aortic arch. A correlation of the radiographic and physical signs, and the clinical history should enable one to give the correct diagnosis. The mere determination of the exact size of the mass may eliminate the probability of aneurism when considered in conjunction with the symptoms. It is possible to have a very large mediastinal growth with very few symptoms. This can rarely be said regarding aneurisms.

In regard to mediastinal abscesses, other than those from spinal caries, it may be stated that a careful correlation of all available data, together with thorough fluoroscopic examinations should assist one, as a rule, to make the diagnosis by elimination.

In regard to abscesses from tuberculous spinal caries, those I have observed were fusiform, bilateral, and narrowed gradually down to the diaphragm. The semilateral radiograph shows up the diseased spine most satisfactorily. In this connection, I wish to emphasize the occasional occurrence of caries of the lower dorsal vertebrae as the cause of severe pain in the upper abdominal region, without local pain or kyphosis to give intimation of the seat of trouble.

The most frequent mediastinal growth is a lympho-sarcoma. The primary indication may be simply a complaint of a feeling of substernal pressure. The radiograph may show a very extensive growth. The differentiation between malignant mediastinal neoplasm and enlarged mediastinal glands will depend somewhat upon the anamnesis, though usually the X-ray will



give definite information. In cases of mediastinal sarcoma, there may be observed distinct indications of irregular involvement of the adjacent tissues. Another indication is the finding of a pleural effusion, or the large, rather undefined shadows of metastatic deposits in the lung tissue. The differentiation of tuberculous mediastinitis is sometimes possible from the peculiar mottled appearance of the posterior mediastinum, with numerous small calcified foci. This may be found without any definite evidence of pulmonary involvement. Syphilitic involvement may be diagnosed by the extensive density of the hilus and mediastinal tissues, associated with aortic dilatation or lengthening. The effect of antiluetic treatment may give a therapeutic diagnosis if comparative plates are made. In doubtful cases, when no history is obtainable and the Wasserman reaction negative, this method may be of value. In Hodgkin's disease, the involved glands are apt to be quite large and discrete.

A marked broadening of the superior mediastinal shadow, regular and clearly defined, usually bilateral, even if not symmetrical, with narrowed or displaced tracheal shadow suggests substernal thyroid. The radiographic appearance of an intrathoracic goitre depends upon whether the substernal thyroid is the extension downward of the supraclavicular gland, or the development of a substernal lobe or accessory thyroid. In the first case the substernal shadow broadens as it approaches the clavicular level and continues into the less distinct supraclavicular shadow. In the second type, wherein the growth is primarily that of an intrathoracic gland, the shadow converges to the median line as it approaches the upper level of the sternum and extends downward convexly, in marked cases overlapping the upper part of the heart shadow. The shadow may be distinctly median and symmetrical, or it may be laterally unsymmetrical depending upon which of and to what extent the lateral lobes are enlarged and furthermore upon the respective levels. When the lateral lobes are particularly involved, the shadow of the compressed and possibly laterally displaced trachea should be observed. If the lateral enlargements are at different levels, the trachea may be flattened and squeezed into an elongated S-shape. If the median lobe is especially enlarged, the compression of the trachea may be observed in the semi-lateral view. The contour is sharply outlined and regular if the mass is not malignant. The heart is displaced downward in proportion to the size of the

tumor. The aortic shadow may show displacement to the left. Upon fluoroscopic examination, it should be possible in most cases to differentiate the aortic shadow from that of the tumor by observations during deglutition which raises the thyroid shadow, or during deep respiratory efforts in which "the goitre goes downward with deep inspiration and upward with expiration" Fluoroscopy during deep respiration may bring into view a small tumor otherwise not demonstrable. Altogether, either by fluoroscopic or thorough radiographic methods, it should be possible in practically every case to demonstrate the shadow of the aorta as a continuous entity separate from that of the tumor.

The shadow of a persistent thymus is not apt to extend so high, but more apt to extend lower, onto the cardiac shadow and is usually less dense than that of a thyroid though occasionally the antero-posterior dimension may be enough to cast a very dense shadow. The lateral boundaries are parallel or divergent from above downward with the edge quite distinct and regular. Upon a semilateral view, the shadow can be definitely located in the anterior mediastinum.

The lesions of the esophagus that must be considered are:

1. Stricture by outside pressure such as aneurism or tumors.
2. Stricture from primary esophageal growth, i. e. malignant.
3. Stricture from non-malignant causes, such as ulcer.
4. Esophagospasm or cardiospasm.
5. Diverticula.

In aneurism, dysphagia may be the first symptoms. The compression is at the level of the aortic arch, at which point there is normally a slight amount of indentation of the esophageal wall. In primary esophageal carcinoma, the bismuth can be seen seeping, in an irregular line, through the shadow of the tumor of the esophageal wall. If the tumor is primarily a sarcoma of the lymph-glands, the tumor mass itself can be observed and occasionally the unilateral, irregular compression of the esophagus. In esophagospasm or cardiospasm, the marked dilatation of the esophagus is seen, with the clear, regular and concentric contraction of the bismuth shadow, which is characteristic. The appearance of diverticula is usually typical, and not to be mistaken, if examined from the angle that shows its saccular shape.

Other lesions that may be found in the mediastinum are dermoid and echinoccus cysts. In regard to dermoid cysts, the



finding of a tooth or a piece of bone in the tumor would make a positive diagnosis.

In conclusion, I wish to state that a correlation of the anamnesis, the physical, and laboratory findings and the X-ray examination is the proper method of procedure to detect or eliminate the presence of intrathoracic pathological processes; the X-ray being of the greatest help in determining the nature of the process, and in corroborating and amplifying the diagnosis. From the standpoint of the physician and surely from that of the patient, a Roentgen illumination intra vitam would seem preferable to an exploratory investigation post mortem.

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**Electrolysis as a Cure for Lead-Poisoning.**—It is a poor rule, we often hear, that won't work both ways. If an electric current may be made to deposit metal in a place where it is wanted, why not use its powers of transportation to remove metal from a region where it is not wanted? By electrolytic action we spread silver in a thin layer over articles that we desire to plate with that metal. By the same power we now remove lead from the tissues of human beings, and thereby save them from suffering and death caused by lead-poisoning. The new method of treatment, which is due to an English physician, is thus described in an editorial entitled "Electricity and Industrial Diseases," printed in *The Electrical Review and Western Electrician* (Chicago, December 13). Says the editorial writer:

"One excellent result of the conservation propaganda so prominent in this country of recent years is the attention which has been called to the problem of caring for health; in other words, the conservation of human beings. Too little attention has been given in the past to conserving of health and the combating of disease, especially those diseases which are fostered or caused by certain industrial occupations. The great toll in human lives which has been exacted in the handling of poisonous materials such as phosphorus, lead, and arsenic, is unwarranted. We already have national legislation to meet this problem in the match industry, and legislation is being sought in many of our States to lessen the hazards of disease in other industries.

"Lead-poisoning is one of the ailments which has frequently been contracted in factories where this metal is handled, altho it is claimed that under proper precautions the contraction of the disease can be prevented by such workers. Nevertheless, it is a fact that this disease has not been stamped out, and it is interesting to note the announcement in England of an electrical method of treating the disease. In a lecture before the Royal Institute of Public Health, Sir Thomas Oliver described the application of an electrolytic bath in the treatment of lead-poisoning. Experiments have been performed not only upon animals but upon a workman who had contracted this disease while cleaning flues in a lead-smelter. The subject was made the electrode in a bath through which current was passed, with the result that lead was transmitted to the electrolyte and the blue line along the gums of the subject, which is a well-known symptom of this disease, disappeared. The general health of the patient was also much improved.—*Literary Digest*.

## SYPHILIS OF THE SPINE

By HARRY G. SLOAN, M. D., Cleveland

The principal point of interest in cases of syphilis of the spine has been the differential diagnosis of this condition. The disease occurs in most any age, from infancy up to the later decades of life. It is hard to arrive at any exact average as to when in life it is most prevalent, but the fourth decade seems to be the one of election for its appearance. Babies with congenital disease may show the syphilitic caries of the spine, which, in their case, is frequently mistaken for tuberculosis. Out of 70 supposedly tuberculous spondylitis cases in The Foundling Hospital in London, 7 per cent of them showed positive Wasserman reactions and cleared up on antiluetic treatment.

*Symptoms:* The process claims the patient's attention on account of pain and possibly some marked tenderness, or if in the neck on account of a swelling. The pain is not so acute, at first, as in tuberculous disease, more a general soreness, but of course this depends largely upon the acuteness of the process. One feature is to be noted, namely that patients ordinarily complain more of pain at night than during the daytime—as is general with bone diseases and syphilis especially. Limitation of motion is noticed on extending the side of the spine where the process is more marked. At the same time they suffer from secondary nerve involvement in the portions of the posterior nerve roots which may be affected by the syphilitic infection. The involvement of the nerves in portions causes distortion of superficial skin sensation, both the epicritic and the protopathic, to heat and cold, with the delaying of sensation in general. The deep reflexes are proportionately involved corresponding to the amount of encroachment of the disease on either the nerve roots or the spinal cord tracts. Pupils lend corroborative evidences of importance, because of the frequent involvement in the accompanying syphilitic disease of the central nervous system.

The *Pathology* depends of course on the presence of the spirochetæ of the syphilis. The process becomes active in those places in the spine that are most exposed to trauma, namely in the neck region. The reason why we most frequently notice gummata of the spine is because of their position when they are exposed to trauma.

The syphilitic process in the spine may assume one of two



types. Either an osteitis, where the bone proper is involved, or a periosteitis, where the periosteum principally is involved; or there may be any variation or combination of these two primary forms.

The osteitis or inflammation of the bone proper, due to the spirochetal invasion, may show either a circumscribed area of disease, or the more diffuse type of gumma, depending on the severity of the process and the ability of the organism to combat the disease locally. In the periosteal type we see either the diffuse thickening of the cortical bone laid down by the periosteum or the late localized gummata in this location. In both types—the osteitis and the periosteal involvement—where the process has been well combated by the body immunity, we note the formation of a denser area of bone deposit immediately surrounding the focus. This in the periosteal type frequently gives rise to nodules on the surface of the bone which, by their pressure either on contiguous bone or nerve structures from a purely mechanical standpoint, by pressure on adjacent structures cause secondary symptoms of pain. Gummata forms in bone where the blood supply is richest. In the periosteitis type we constantly find the periosteum intact over the active process. The end result of the gummatous process is caseation, with the subsequent liquifaction of any necrotic material. The real point of importance in syphilitic disease of the spine is the secondary involvement of the central nervous system. Almost universally we find secondary involvement of the meninges occurring synchronously. This in turn gives rise to the so-called radiculitis or leptomeningitis—syphilitica. One not infrequently sees the process cross over into the cord tracts proper, with the resulting symptoms of their involvement, so that there may be a myriad of symptoms and signs depending on the possible involvement of either the bony or nerve structures.

*Diagnosis:* As we have said, trauma probably plays an important role in the location of gummata in general, so that in the spine we might expect that the neck, which is most mobile and more subject in motion than any other part of the spine to possible trauma, would be most frequently effected. Of the four cases which I wish to report, three showed involvement of the cervical vertebrae and one of the lumbar spine. If you are fortunate enough to have him during the first stages of the disease, the patient comes complaining of stiff neck. He notes

transient pains with a remaining soreness, and, on examining motion of his neck, you will find limitation in the planes where the process is most marked. Palpation of the upper cervical vertebrae through the mouth may reveal a tender spot on the posterior pharyngeal wall. Palpation over the outer side of the vertebrae in cases where the periosteum is especially involved, may disclose local tenderness, or even a slight swelling due to the inflammation of the tissues immediately overlying the bone with some new bone involvement.

The stereoscopic X-ray plates are of great importance and they, with the characteristic findings of nerve root involvement, practically confirm the diagnosis. As I have said before, the involvement of the bone will be shown in the X-ray either as a diffuse thickening of the periosteum, with possibly some new bone deposit, or as a blurring of the outline of the bone; on the other hand it may show the punched out effect in the body of the vertebrae proper. Usually two or three of the adjacent vertebrae are also involved in the process. One sees, most frequently, the combination of the periosteal involvement with that of the syphilitic osteitis or gummata of the interior of the bone. The X-ray picture is not entirely distinctive, excepting in those cases where we see the new formation of bone from the periosteal involvement. The gummatous type, involving the body of the bone where there has not been enough reaction to cause a thickening of the bone immediately surrounding the process, might be very readily mistaken for tuberculosis in this location. Also, it is well nigh impossible to differentiate the punched out gummatous involvement from the picture that a metastatic malignancy might give in the same location. Hypertrophic osteoarthritis shows in the X-ray plates a lipping of numerous contiguous vertebrae. With tuberculosis there is not usually the formation of new bone, but these processes in determining the formation of new bone depend entirely on the intensity of the reaction which the organism makes against the invading offender--whether it be the tubercle bacillus or the spirocheta of syphilis.

The next important point of distinction is in recognition of the other syphilitic lesions in the body. Pupils have been especially helpful to me, since by involvement of the cervical sympathetic, or because of a previous iritis leaving the iris adherent, they not infrequently show either disproportion in size or an irregularity in outline which is brought out more markedly



with the light reflexes. One must also look for involvement of the bones of the nose and throat and the various locations of predelection of gummatous syphilis in the body. The most helpful point is found probably in the condition of the central nervous system. The deep reflexes on the more effected side have in my cases been decreased in comparison to that of the less effected side. Of course this depends entirely on the type of nerve involvement, whether it be of the peripheral nerves or the segments of the cord. The disproportion in dissociation in skin sensation over adjacent nerve root segments is quite an important point and helps one in excluding the acute paralytic conditions occurring in a very active tuberculous spondylitis, that is to say, in the tuberculous spondylitis, the level of the lesion is quite sharply marked, where with syphilitic spondylitis, because of the more extensive involvement of the meninges which run out on the nerve roots, we note a more gradual involvement of the segments in the abnormal skin sensation. In excluding tuberculosis, of course, the intra-muscular tuberculin test must be used with caution where there is any suspicion of an active tuberculous involvement. Start your dosage well down in amount and work it up gradually; but before calling the reaction negative be sure your patient has received a dose of 10 mg.

Strange to say, these bone cases and bone cases in general do not show a large proportion of positive Wasserman reactions in comparison with syphilitic disease of the soft tissues. I am not sure of the explanation of this fact, but apparently the bone process seems to be more isolated from the general circulation than would be probable with involvement of the soft tissues. The acute bone syphilis shows a larger percentage of pus reactions than the chronic forms. It is a wise procedure, if one reaction is negative, to give our patient small doses of potassium iodid for a week or ten days before trying the test again. This will in many cases bring out a positive Wasserman reaction. Frequently the diagnosis, after the exclusion of tuberculosis and with a negative Wasserman reaction, must be made on the beneficial effects obtained after the administration of mercury and potassium iodid or salvarsan.

The prognosis depends more on the involvement of the central nervous system than on what involvement there may be of the bone. The bone clearing up rapidly, usually, but the central nervous system, because of its being covered by the

meninges which are not permiable to syphilitic antibodies nor antisyphilitic drugs, harbors the spirochaetae in a secluded and protected location so that, necessarily, recovery of the central nervous system after involvement with syphilitic disease is necessarily slow—much slower than where the process is freely exposed to the antibodies contained in the blood. This point has been markedly brought out by Swift and Ellis in their work on Syphilis of the Cord. Usually in the milder cases, we have obtained relief from the pain, in six weeks when they have been subjected to a vigorous course of injections. As for the local treatment it depends on the severity of the process. The one surprising feature is the apparent disproportion in the severity of the process in the bone, as disclosed by the X-ray, and the slight amount of pain that the patient complains of. In case the process has gone on too far, we may have to use locally some support to the spine such as is used in the treatment of tuberculous disease. After we have our patient well under the influence of mercury, I find that they can get along with a weekly injection of a grain. Use ordinary treatment of three months mercury with one month rest intervening for 2 years. The determination of the cure in these cases, where the Wasserman reaction has been negative from the first, is difficult. Our judgment will have to depend entirely on the objective symptoms in the patient where the pain clears up quite rapidly and our ultimate judgment is guided by the condition of the nerve segment and the X-ray picture of the spine. One fact not to be overlooked is that unless we absolutely destroy every trace of the gummatous process, the disease will certainly return locally soonér or later.

I have not as yet given any of my patients salvarsan, having used in mercury and potassium iodid owing to the very slight danger in administration of salvarsan and also in order to confirm my diagnosis by the use of the mercury.

There comes a time in the treatment of every case of syphilitic disease of the spine when the patient seems to temporarily make no progress. I believe it beneficial, when this period comes as it nearly always does, to advise change of climate, with the cessation of mercurial treatment for a month to six weeks. The benefit of change of locality, air, food and surroundings is well recommended by the old English physicians, and because



of this fact, some of the well-known resorts in England have assumed their popularity.

After having discontinued the mercury for six weeks to six months, and during this time we may be pretty well certain that all the drug has been eliminated from the system, it is a wise plan to give these patients full doses of salvarsan or neosalvarsan intravenously. This sort of treatment appears to clear up those cases where the infection has become resistant to mercury.

I do not wish to bore you with an outline of these four cases, but let me cite for your interest a single distinct characteristic one. Mr. G., age 50, complains of stiffness in the right side of his neck and shoulder, with pain. Noticed this first, six months ago, as a heavy feeling in the neck, which has progressively grown worse. He has gained temporary relief at times from massage and hot applications. Two days ago noticed a lump in his neck at the right side, which corresponds to the lateral process of the vertebrae. Two months ago neck was drawn to the right—massage relieving this somewhat. On inspection I found a localized swelling over the sore spot, which is felt as an injurative process in the location of the sixth cervical vertebrae of the right side. 2 x 2 cm. and raised 1 c. Tender on pressure. Slight restriction to motion in every direction. Flexation, lateral bending, rotation and extention. Skin sensations and reflexes of the right side down, from the segment of the lesion are decreased and less active than on the left. Pupils react to light and accommodations—slightly irregular in outline. No lymphatic enlargement. Denies absolutely and honestly any luetic infection. Wasserman reaction is negative. Stereoptican X-ray of cervical vertebrae shows bilateral erosion of the fifth cervical vertebrae with periosteal involvement of the adjacent two vertebrae. Tuberculin reaction negative when pushed to 10 milligrams. Pain and nerve symptoms with the exception of the pupil irregularity have entirely disappeared after six weeks mercurial treatment.

## THE ROLE PLAYED BY THE OBSTETRICIAN IN THE PREVENTION OF INFANT MORTALITY\*

By A. F. FURRER, M. D., Chairman the Obstetric and Pediatric Section of the Ohio Medical Association, Cleveland.

The annual maternal mortality from "the accidents of child-birth" in the United States is variously estimated to be between ten and twenty thousand cases. It is probable that most of the babies from these mothers are lost also within the first few weeks of life. Statistics reveal that 20 per cent of the total mortality from all causes, at all ages, occurs during the first year of life, and that 40 per cent of all babies dying during the first year, succumb during the first month.

If, therefore, 300,000 babies die annually in the United States, 120,000 die while still (nominally at least) under the care of the obstetrical attendant.

Infant mortality, its causes and prevention, has aroused the interest of the entire medical world during the past decade. A leading part in this world-wide movement has hitherto been taken by pediatricists and social workers. Witness the development and growth of certified milk commissions in this country, child welfare agencies, and the founding of national and international societies organized to study and combat unnecessary waste of infant life.

A recent visit to some of the principal obstetrical clinics of Europe has greatly emphasized in the writer's mind the importance of the role to be played by the Obstetrician in the prevention of needless deaths.

It is generally conceded that the great underlying causes of excessive infant mortality are, poverty and ignorance, and to this may be added hereditary disease. The problem is therefore not only medical-obstetrical, but sociological as well, and the successful obstetrician of the future will have to be broad enough to be interested in some of the problems of internal and preventive medicine and have a fair working-knowledge of the essentials of infant feeding and hygiene. Strictly, the specialist in obstetrics does not exist. In some countries the obstetrician is a gynaecological surgeon also. In others obstetrics and pediatrics are practiced together.

In many localities excellent obstetric work is being done by well-trained men who are also doing a general practice.

\*Read at Cedar Point, September 3, 1913.



*Special training*, however, is absolutely essential and preferably covering a period of from 2 to 3 years internship in a hospital. Short postgraduate courses, while better than nothing, will never take the place of actual residence in a hospital under the supervision of specifically trained high-grade men.

No physician has a moral right to take charge of an obstetric case who has not mastered certain fundamental principals, such as "the mechanism of labor," "the prevention of sepsis," developed reasonable skill in the art of obstetric diagnosis, and had a training sufficient to overcome common obstetric complications such as, perineal lacerations, post partum haemorrhage, and asphyxia of the new born. These are what may be termed, minimum requirements.

To most of us interested in the study of the causes and prevention of infant mortality, certain broad questions naturally suggest themselves. They are:

(1) What can be done effectually to lessen the annual mortality of women dying from the so-called "accidents of childbirth?"

(2) What becomes of their babies?

(3) What classes are chiefly affected?

(4) What may be the maternal morbidity (which of course can never be ascertained accurately), and what is the ultimate result of hundreds of thousands of such *invalid mothers* attempting to nurse their babies?

(5) What co-operating agencies will the Obstetrician need in helping to lessen infant mortality, and how can he in a practical way attack the problem at once.

It is obvious that the chief co-operating body in a problem of this magnitude must be the Board of Health. In fact it should be the chief directing body.

It is estimated that approximately 50 per cent of all labors in our large cities are conducted by midwives. In Cleveland the percentage may be still higher.

Accurate figures cannot be obtained, however, as only a small percentage ever make out birth returns.

It is generally known that midwives practice chiefly among the poor—the majority of whom are foreigners.

The writer believes that medical supervision of all midwives, under direction of the local Board of Health, if performed by conscientious and competent men, would be a very important

factor in materially reducing infant and maternal mortality. Other advantages would be:

- (1) The prompt recording of births.
- (2) Greater efficiency in controlling ophthalmia neonatorum.
- (3) The prompt recognition of major communicable diseases, just where they are most likely to occur and spread; and the prevention of epidemics by early segregation and quarantine.
- (4) The prevention of smallpox by general vaccination.

Municipal supervision of midwives, under the Board of Health, would mean the teaching of what may be termed ignorant or inadequately trained women, yet without taking away their means of earning a livelihood.

From this could be developed municipal clinics for, at present, the very much-neglected pre-natal instruction and care.

Finally, competent medical supervision of all midwives would insure adequate medical care during the entire puerperium. Breast-nursing would be systematically promoted, encouraged and regulated—the greatest single factor, conceded by all pediatricists, in the conservation of early infant life.

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## ANNUAL MEETING OF THE CLEVELAND MEDICAL LIBRARY ASSOCIATION.

The annual meeting of the Cleveland Medical Library association was held at the library building, December 9th, and was well attended. The report of the Secretary showed that the present membership of the Library is 252.

There are at present in the Library, as shown by the report of the Directing Librarian, about 20,000 bound and unbound volumes, and about 10,000 reprints, pamphlets, and theses. There are on file in the reading room 281 journals, of which 145 are American, 53 German, 36 British, 28 French, and 19 various others.

It was also reported that the sum of \$3300 had been collected as a memorial to the late Gustave C. E. Weber. It is proposed to use the income from this fund to provide free memberships in the Library as a reward of merit to persons designated by the Council.

Dudley P. Allen gave the address of the evening on "Medicine in the Early Days of the Western Reserve."



The following officers were elected for 1914: President, B. L. Millikin; Vice-president, H. F. Biggar, Sr.; Secretary, H. L. Sanford; Treasurer, W. E. Bruner; Directing Librarian, C. A. Hamann; Trustees for three years, W. B. Laffer, H. J. Lee, A. Peskind, J. P. Sawyer, and A. F. Spurney.

### REPORT OF C. A. HAMANN, DIRECTING LIBRARIAN:

Bound Volumes, General works.....	8,722
Bound Volumes, Journals.....	6,068
Unbound Volumes, Journals.....	2,355
Reports and Transactions.....	2,666
<hr/>	
Total .....	19,811
Unbound Pamphlets.....	10,308
Number of books loaned to members.....	1,116
Visitors registered during year.....	1,170

The Library has received, from all sources, during the past year, 518 volumes, 23 unbound volumes of Journals, 535 numbers of various periodicals, (this does not include the journals received through the exchanges of the Cleveland Medical Journal), 132 pamphlets. About three hundred (300) journals are regularly received and are on file at the Library.

The number of exchanges received through the Cleveland Medical Journal is 147. There have also been 76 bound volumes donated to the Library through the Medical Journal. Only one new Journal has been added, viz. "The British Journal of Surgery."

Through the kindness of C. F. Hoover, the Library has completed the file of "Zeitschrift für Immunitätsforschung und experimentelle Therapie."

The Report of W. E. Bruner, Treasurer, showed:

Receipts .....	\$5,380.11
Expenditures .....	5,200.17

**Medical Progress.**—Mr. Abraham Flexner's article, in the November *Atlantic*, on "The German Side of Medical Education," deals primarily with the underlying elements of the situation as a whole. And yet he points out so many definite features in which the position of medical education in Germany differs—in almost every instance to its advantage—from that in this country that the article is anything but a series of glittering generalities.

The causes of superiority in the German medical system are briefly summarized by Mr. Flexner as follows:

First, the high minimum level of organization and equipment, below which the Government will permit no medical school to live; second, the prolonged and serious secondary-school training, which is absolutely, without exception, exacted of every student in the medical faculty; third, the freedom of the German university, which gives the professor the strength and leisure to work and encourages the capable student to do more than the minimum requirements of the curriculum for graduation; finally, the high respect in which the practicing profession holds the teaching profession, and the custom of calling teachers freely from university to university.

The one great factor in our own situation which operates to offset these points of superiority is the steady flow of magnificent gifts which American men of wealth have been directing to the support of medical education and the furtherance of medical progress. "The German medical scientist," says Mr. Flexner, "looks with envy and wonder upon the munificence of the great American benefactors of medical education." It is the defect of this method that it has not the effect of directly raising the general standard. But even the general standard is powerfully affected by the example of one or two great schools; and the method of private initiative has the advantage that in any one place, without waiting for the adoption of a "country wide" policy, an institution may be built up to almost any desired degree of excellence.

Since Mr. Flexner's article was written, two events have occurred which give fresh point to this last consideration. From an anonymous donor there has come to Cornell the magnificent gift of \$4,350,000, which is to go into the general fund of the medical department in New York City. No part of the money is to be used for new buildings, and with an addition of \$200,000 a year spent chiefly in getting the best possible men, the Cornell Medical School may be expected to take an important place in raising the standard of medical education throughout the country.

The other event, though not so dazzling, is, if anything, even more significant. The General Education Board has given to Johns Hopkins Medical School a special endowment of about \$1,500,000 for the inauguration of a new departure in medical teaching—new not only in this country but in the world. This fund is to be used for the purpose of so reorganizing the Departments of Medicine, Surgery, and Pediatrics that the professors and their staffs in these departments shall completely withdraw from paid practice in order to devote their entire time to the care of patients, teaching, and research. That this new departure is in the nature of an experiment must be admitted; but that it will succeed and yield signal results is rendered highly probable by the nature of the gift, which was made not on chance notion of some well-intentioned individual, but as the result of representations made to the General Education Board by the Medical Faculty of the Johns Hopkins University and the trustees of the University and the Hospital.



# The Cleveland Medical Journal

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THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

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Reprints of articles will be furnished authors at a reasonable price.

All remittances to the Journal should be made payable to The Cleveland Medical Journal.

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Short notes upon clinical experiences or reports of interesting cases will be welcomed by the editors.

Original articles are accepted for publication by this Journal only with the distinct understanding that they are contributed solely to this Journal and will not be published elsewhere as original.

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## EDITORIAL

### THE NEW HEALTH COMMISSIONER

At the time of the framing of Cleveland's new Charter, a Committee from the Academy of Medicine appeared before the Commission to make recommendations regarding provisions in the Charter concerning health matters. It was unanimously urged by this Committee that the legislative power in health

matters should be vested in a Board of Health, rather than that a Commissioner of Health should be obliged to go to a Council for the ratification of his proposed ordinances. This plan was advocated by the Academy Committee because in the study of this subject, it had found that health experts over the country were unanimous for a Board of Health control of health legislation, on account of the experience of cities which had appointed as Commissioners of Health high priced health experts, only to find that these men were checkmated at every turn by the politicians in the Council or Board of Aldermen which either would not pass ordinances the Commissioner proposed, or would not give them appropriations to enforce them.

Two notable examples of cities where exactly this thing happened were Chicago and Minneapolis, where politicians almost completely nullified the efforts of the Health Commissioner. The Academy Committee felt that Cleveland was probably no nearer the millennium than the cities mentioned above, and that a Commissioner of Health here might have a similar experience.

In opposition to the plan offered by the Academy Committee, there were several arguments advanced in favor of a Commissioner of Health as against a Board of Health. It was asserted that administrative authority, centralized in one man helps to fix responsibility, in any business and is less cumbersome than Board control: hence what is true in other matters would also apply to health problems. Another argument offered against a Board of Health was that if the Charter aims at a government by the people, the legislative powers in health affairs should remain with the people's representatives in the Council, rather than be placed out of their control in a Board of Health. Further, that the public should be so educated in health matters that their representatives in the Council would unerringly vote right on even such unpopular measures as compulsory vaccination and matters of quarantine with the further obvious consequence that until they were so educated, they would have to suffer for their ignorance. It was further even hinted that there was no reason to assume that politics would interfere with a Health Commissioner in Cleveland under the provisions of the new Charter. This recalls the old story of the attorney, who on visiting his client in prison, said, "Why, they can't put you in jail for this," to which his client replied, "But I am in jail."

All this, however, is ancient history. Cleveland no longer



has a Board of Health, as it died gracefully on December 31st. On the contrary it has a very live Commissioner of Health, and we wish to take this opportunity of congratulating the city administration on its good judgment in appointing to that office, a man who for some years has been Secretary of the Board of Health. We feel that the present high efficiency with which health problems in Cleveland have been studied and administered, as shown by the visits to Cleveland of experts in various lines to study our methods, has been due in no small part to the efforts of the new Commissioner of Health. However gloomy we may have felt in the past as to the success of the Commissioner plan, we cheerfully admit that politics could have had no part in Doctor Ford's appointment, and we sincerely hope that politics will not hinder his administration.

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### THE CITY HOSPITAL AFFILIATION WITH WESTERN RESERVE UNIVERSITY

Public announcement was made on Monday, Dec. 29, 1913, by President Charles F. Thwing of Western Reserve University, that the Cleveland City Hospital and the School of Medicine of Western Reserve University are to be affiliated.

The agreement which will be entered into by the City and the University will provide that all members of the Visiting Staff of the City Hospital shall be nominated by the Trustees of Western Reserve University upon recommendation by the Faculty of the School of Medicine. The Visiting Staff will have absolute authority over the professional treatment of all patients of the hospital. The Director of Public Welfare will be the administrative head of the hospital. The University will have all teaching and research privileges.

The affiliation will mean for the hospital the best of medical service at no cost to the city. It will give to the University additional educational resources. The opportunities for teaching and research in the contagious and psychiatric departments will be of especial value to the University. The affiliation will add about five hundred hospital beds to the number previously available, increasing the total number of beds available to the School of Medicine to about thirteen hundred.

President Thwing said last night, "In accepting the responsibility of this relationship, the University will seek to conserve

the public health, to serve the people of Cleveland and the great cause of medical education. This affiliation, with the affiliation already existing with Lakeside Hospital, Charity Hospital and other Cleveland hospitals, will be a large factor in helping Cleveland and the School of Medicine of Western Reserve University to become one of the world's outstanding medical educational centers."

The School of Medicine of Western Reserve University was organized in 1843. It is the third oldest existing medical school west of the Allegheny Mountains. Three other schools have been consolidated with it: the Medical Department of the University of Wooster, the Charity Hospital Medical College and the Medical Department of Ohio Wesleyan University. The total number of graduates from the Western Reserve Medical School and consolidated schools has been about 3,800.

The Western Reserve School of Medicine has become one of the foremost medical schools in this country and has secured international reputation. It was one of the first medical schools to be endowed, to command full time of members of the teaching staff, and to adopt high entrance requirements, these requirements now including the high requirement of a college degree. The departmental endowment of the School is now \$1,533,000. The development of hospital facilities is illustrated by the growth from fifty-nine hospital beds in 1875, to about thirteen hundred, following the affiliation with the City Hospital in 1914.

The general regulations to govern the internal organization, nomination and appointment of the Visiting Staff of the Cleveland City Hospital, agreed upon by both the City and the University, are announced as follows:

1. The Director of Public Welfare is the administrative and executive head of the hospital. He corresponds to the Board of Trustees in a private or university hospital, and has final authority in all matters except those concerning professional treatment.

2. The superintendent is the general manager of the hospital. He is held responsible for the administration of the affairs of the hospital as is the superintendent in any well organized and efficiently managed public or private hospital. This includes authority to appoint and remove all employes, including assistant superintendents, resident physicians, the head of the training school, and all other heads of administrative departments and their subordinates, subject at all times to such civil service rules



as apply, and with the approval of the Department of Public Welfare. All of these officers and heads of departments are responsible to the superintendent. He and his assistants have absolute control of all admissions to the hospital and the final discharges. The medical house officers are responsible to the visiting staff for the proper performance of their professional duties, but in all matters of personal conduct and administrative or general duties they are directly and wholly responsible to the superintendent.

3. The visiting staff shall have absolute authority to dictate the professional treatment of all patients admitted to the hospital.

4. All the professional work of the hospital shall be grouped under two divisions, medical and surgical, each in charge of a Division Chief.

Under the medical division there shall be grouped the following departments each in charge of a Department Head: General Medical, Neurological, Dermatological, Children's, Contagious, Tuberculosis.

Under the surgical division there shall be grouped the following departments each in charge of a Department Head: General Surgical, Orthopedic, Genito-Urinary, Nose, Ear and Throat, Eye, Obstetrical.

The chief of the medical division shall serve as head of the department of General Medicine.

The chief of the surgical division shall serve as head of the department of General Surgery.

5. There shall be a Pathological Department under the direction of a Department Head.

6. The chief of each division shall be on duty the entire year and at all times responsible for the working efficiency of his division and for the professional treatment of all patients assigned to his division.

It shall be the duty of each Division Chief to nominate to the Department of Public Welfare candidates to fill any vacancy in his division caused by emergency, until such time as nominations can be made in the regular way. Appointments shall be made by the Department of Public Welfare from candidates so nominated.

Each Division Chief shall designate one of the members of his division as Assistant Division Chief to perform the duties of the Chief in his absence or incapacity.

7. The head of each department shall be on duty the entire year, and at all times under the direction of the Division Chief, and shall be responsible to the Division Chief for the working efficiency of his department and for the professional treatment of all patients assigned to his department.

8. There shall be an assistant head of each department who shall be on duty during the entire year. In the absence of the Department Head he shall have, under the Division Chief, full charge of the professional work of that department.

9. Under each Department Head there shall be a sufficient additional number of visiting physicians and surgeons so that each patient shall be visited by the Department Head, the Assistant Department Head, or by one of such visiting physicians or surgeons each and every day.

The number of visiting physicians or surgeons in any department shall be agreed upon by the chief of the division to which that department belongs, the head of that department, and the superintendent, subject to the approval of the Department of Public Welfare.

10. A regularly appointed visiting physician or surgeon, below the grade of assistant head of department, need not have continuous service, but in no case shall he serve for less than four months per year.

11. Appointments to all positions on the visiting staff shall begin Feb. 1, 1914, and shall extend to Jan. 31, 1915, inclusive; thereafter, the term of appointment shall be for two years beginning on Feb. 1st of odd years.

12. The nomination of all members of the visiting staff shall be made in writing by the Trustees of Western Reserve University (on recommendation of the Faculty of the School of Medicine of Western Reserve University) to the superintendent of the hospital on or before Jan. 10, 1914, Jan. 10, 1915, and Jan. 10th of odd years thereafter.

The superintendent shall transmit these nominations to the Department of Public Welfare within ten days together with any pertinent comments on the same. All such nominations shall be subject to the approval of the Department of Public Welfare.

The Department of Public Welfare shall act on these nominations within five days and shall notify the appointees in writing.



13. The School of Medicine of Western Reserve University shall have the privileges of teaching and research in the City Hospital subject to the approval of the Department of Public Welfare.

With the growing importance of Cleveland as a medical center, every affiliation of this kind is of the greatest importance.

We congratulate both the City of Cleveland and the University for meeting the needs of the citizens of Cleveland in a way so promising of good to all.

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### A WELL-DESERVED RECOGNITION

The recent campaign to raise \$250,000 to pay off an indebtedness of about \$50,000 and to build a new Surgical wing for Charity Hospital was more than successful, nearly \$300,000 having been raised in six days. This gratifying result is a deserved recognition of the part that Charity Hospital, the oldest general hospital in this city, has played in the care of Cleveland's sick and injured for nearly fifty years.

The fact that, without endowments of any kind, it has been able to do its work so efficiently for fifty years, with an accumulated indebtedness of but fifty thousand dollars, speaks volumes for the careful and conscientious manner in which the Sisters in charge have carried on the stewardship entrusted to them so many years ago by the citizens of Cleveland, who built the hospital primarily to care for the sick and wounded soldiers returning from the great Civil War.

Charity Hospital, in addition to its other work, has been identified with medical education almost from its inception, and was the nucleus from which, in earlier days, sprang Charity Hospital Medical College, and later became, as it is now, and as it is destined to be in the future, one of the important factors in the medical teaching of the Medical School of Western Reserve University.

The enthusiastic and generous response of Cleveland to the first general call that Charity Hospital has made for help, must indeed be gratifying to those who have labored so long in its service, and is a guarantee of confidence in its administration of the great trust and responsibility that has again been placed upon it.

## NATIONAL CONFERENCE ON THE STUDY AND PREVENTION OF INFANT MORTALITY

The fourth annual meeting of the American Association for Study and Prevention of Infant Mortality was held at the Hotel Williard, Washington, D. C., November 14-17, 1913.

The increased attendance over former years, the enthusiasm expressed, demonstrated more clearly than words that these meetings have proven their value.

The first section, on Nursing and Social Work, had limited its number of papers to three, in order that there might be time for discussion from the floor, and the response was splendid. Physicians, laymen and nurses themselves evidenced intense interest, showing that it is generally realized that, with the rapid extension of preventive and educational public health work, a demand for nurses, which far exceeds the number of those who have had the necessary specialized training, has been and is constantly being made, and that ultimate success can only be obtained by either including more instruction in the care of infants in the regular curriculum of the training schools, or the nurses wishing to specialize, must receive additional experience through post-graduate courses in infant hospitals.

The session on Pediatrics was under the Chairmanship of Doctor Henry F. Helmholtz, who said that the hygiene of infancy is a much-neglected field and one that needs considerable revision. The teaching of the hygiene of infancy should be a requirement in all medical schools.

Doctor J. W. Schereschewsky's Referate on Heat and Infant Mortality, and his conclusions drawn, are worthy of especial attention. They are:

1. The action of heat as a direct cause in death of infants has hitherto been greatly underestimated. In the future more weight should be given to its influence.

2. The lethal action of heat is a function not so much of the maximum and mean temperatures of the external air as of the indoor temperatures.

3. The action of dirty and stale milk is causing the death of infants, while undoubtedly a contributory factor, has been given an importance which has overshadowed other factors of equal or greater significance. There is evidence to show that a certain proportion of infant deaths is due to specific infections,



in the dissemination of which contact infection and flies doubtless play a part.

4. As a result, future activities for the prevention of infant mortality must concentrate themselves to a greater extent on the question of housing, especially with respect to the factors of overcrowding, narrow streets and presence or absence of thorough ventilation. The general public should be educated as to the importance of these factors in causing infant's deaths, and especially as to measures which will prevent children from suffering from the heat.

5. Breast-feeding must still be regarded as a most, if not the most, important factor in reducing infant mortality.

Eugenics and Continuation Schools of Home-Making were two sessions, showing careful thought and extensive investigations by each committee. Both sessions indicated that the course of procedure must be along educational lines, rather than any sudden solving of the questions.

The session on Obstetrics was the outcome of a year's work, the chairman having formed a committee of 42 from all parts of the country. Prenatal care was enthusiastically discussed. Doctor Schwartz manifesting his belief in his first statement that, "Taking care of the health of prospective mothers and preparing them physically and mentally for their task, is the first and the most important step in the conservation of infant life."

Doctor J. Whitridge Williams would have an Ideal Obstetric Out-patient Clinic, organized upon very broad lines, and including consideration of:

1. The best method of caring for all women who need it.
2. The effect upon the community.
3. Its bearing upon the education of medical students.
4. Its effect upon advancing knowledge.

Perhaps the best session of all was that upon a supposedly dry subject: Vital and Social Statistics. Doctor Woodhard, keenly wide-awake and inspiring, said, "Emphasis will be placed on the utilization of vital statistics as a method of determining the extent of infant mortality, the direction that efforts should take to limit such mortality, and the efficiency of such efforts. These several groups of statistics, properly collated and analyzed, would undoubtedly promote efficiency and economy in the expenditure of effort and money for the prevention of infant

mortality, and are essential to any rational effort along such lines.

Doctor L. Emmett Holt gave an historical review of infant work, and I am sure every person attending the Conference felt that there is nothing more worth while in life than that of putting forth every effort to "Save the Babies."

## DEPARTMENT OF THERAPEUTICS

Conducted by J. B. McGEE, M. D.

**Neuritis:** In the *International Clinics* (Vol. 14, 23d Series), A. B. Hirsh considers the medical and other treatment of neuritis. Recent modifications in the treatment of non-traumatic neuritis are summarized, and recognition of the fact that neuritis depends upon either malaria, diabetes, influenza, a pre-existing continued fever, intestinal torpor, syphilis, poisoning by a mineral, tobacco or alcohol, would in itself supply the indication for orthodox drug-remedies. In addition, radiant light and heat, followed by the static wave current, with or without the static brush-discharge or static sparks, are to be applied over the aching nerve and spasmodic muscles just as when due to other causes. When neuritis depends upon a toxemia, from whatever source, the latter requires special treatments. It may depend upon intestinal torpor with fecal resorption, one of the more frequent, even if seemingly remote, causes. Here, in addition to subjective symptoms of abdominal distress, there is often a history, that may necessitate careful questioning to elicit, of long-continued irregular defecation. In such event, improvement should follow (1) an efficient course of high colonic flushings with water or oil to remove impacted feces; (2) the return of daily evacuations by the static-induced current with the snow rectal electrode within the rectum, and a metal plate over the colon; (3) the giving of a salicylate or other intestinal antiseptic; (4) The application of a 500 c. p. hooded incandescent lamp over the abdomen for improved local tissue change; this followed by (5) the static wave current, a metal 8 by 12 inch electrode being placed diagonally below the ribs for this purpose. When consulted however for relief of neuritis due plainly to a trauma, the progressive physician realizes at the outset that removal of the plastic infiltrate is imperative—and here all the remedies in the pharmacopeia will fail him if mechanical methods are omitted. All the bakings, hydrotherapic, and like measures will be insufficient if proper electric methods are forgotten. Locally, therefore, the chief indication is removal of the offending exudate, through the static wave current, with the same metal electrode bandaged over the affected nerve areas as was used in their localization. Indeed, the diagnosis and treatment may thus be made continuous. Herpes Zoster calls for separate electric treatment, and here again the method generally advised by Snow will give the best and earliest results. Apply radiant light and heat to full hypemia over the whole area, firm vibrassage with a button vibratode upon the appropriate posterior nerve roots, the static wave over the unerupted patches, and the static brush over the herpetic blebs. The rapidity with which this annoying disease then vanishes is almost uncanny. Brachial neuritis calls for radiant light and heat, and then the static wave current, applied by a flexible metal electrode over the soft structures that cover the plexus between the clavicle and the scapula. It is here that inflammatory exudates are mostly found.

**Cardiovascular Disease:** In the December number of the *Archives of Internal Medicine*, Theodore C. Janeway presents a clinical study of hypertensive cardiovascular disease. His conclusions are: (1) The most prominent symptoms associated with high blood-



pressure are circulatory rather than renal. The disease underlying high arterial pressure is predominantly a disease of the circulatory system, and is best designated hypertensive cardiovascular disease, either primary or secondary, when preceded by an inflammatory nephritis. (2) Death in this type of cardiovascular disease, among patients in private practice, occurs in the following ways, in the order of their frequency; 1st, by gradual cardiac insufficiency; 2d with uremic symptoms; 3d by apoplexy; 4th from some complicating acute infection; 5th in an attack of angina pectoris; 6th from purely accidental and unrelated causes; 7th in a paroxysm of acute edema of the lungs; 8th after the manner of cachexia,

(3) The early symptoms associated with hypertensive cardiovascular disease have an important prognostic significance which can be utilized therapeutically, especially for the institution of safeguarding treatment. (4) The early occurrence of symptoms of myocardial weakness, especially dyspnea, indicates a more than 50 per cent probability of an eventual death by cardiac insufficiency. In these cases, to safeguard the heart is the main therapeutic indication. (5) The early occurrence of anginoid pain, on exertion, does not indicate the probability of death in an anginal paroxysm for more than one-third of the patients. It does indicate a probable cardiac death of some type. The therapeutic indications here are similar to the foregoing, except as modified by the existence of syphilitic aortitis. Anginal attacks, as compared with other cardiac symptoms, do not materially affect the expectancy of life. (6) Polyuria, especially of nocturnal, indicates the probability of uremic death for more than 50 per cent of the patients. It is not essential to safeguard the heart in these patients unless associated cardiac symptoms exist. (7) Headache, especially that heretofore described as typical, indicates the probability of a uremic death for more than 50 per cent of the patients, and of the death from apoplexy for a considerable number of the remainder. The therapeutic indications are similar to those of polyuria. (8) Loss of flesh, if marked and progressive is a symptom of bad prognostic import. (9) The relation of the height of the blood-pressure to prognosis, is doubtful. Systolic pressures well above 200 m. m. hg. persistently, seem to indicate greater probability of death by uremia or apoplexy. The exact height of the blood pressure does not seem to have much bearing on the expectancy of life. (10) The average duration of life in this group of patients, after the onset of symptoms associated with high blood-pressure, has been four years for the men, and five for the women. One-half of the whole number died during the first five years, one-quarter lived between five and ten years, and the other quarter over ten years from appearance of first symptoms. So considerable a number living a long period of time suggests great caution in making a prognosis as to expectancy of life.

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**Colon Therapy:** *American Medicine*, in its November number, states that therapy of the colon is destined to loom up large in the future, and we must again take up the discarded intestinal antiseptics with the hope of finding some which are as truly specific for bacteria as emetin has proved to be for amebae. Vaccines may solve the problem, if we can find the offending bacterium, but unfortunately the original culprit is not unfrequently driven out by later invaders which are not able to start disease themselves, but, like a mob of riotous looters, become active when defense is weak. Metschnikoff's Bulgarian lactic acid bacillus has accomplished phenomenal results, but is disappointing in certain cases. Where there is sagging of the intestines, and delay in flow of their contents, Lane has succeeded marvelously by supporting the abdomen with a truss and administering a half ounce of Russian liquid paraffine a half-hour before meals. The oil acts mechanically as a lubricant, as it cannot be saponified, and undergoes no chemical change. It passes through with the feces. The American mineral oils do not succeed so well, as they contain sulphur—particularly the western products. Hence the fluid paraffine (white oil, petroleum, etc.), made from them, are irri-

tating to the intestines, and are said to have caused nephritis. They also contain a high percentage of acid and fluorescent hydrocarbons of the pentane, hexane series, all of which are also irritating. For these reasons, the Russian oil must be given as it is free of sulphur and the undesirable hydrocarbons. Finally, if the colon is incurable, we must decide whether to short-circuit it or remove it—and this must be decided by the surgeon. All these matters should really be made known to laymen to popularize the idea that small illnesses and local suppurations, usually considered trivial, may in fact start a chain of diseases which bring death several decades too soon. The dentist alone has become an enormously important factor in preventing chronic invalidism and prolonging life.

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**Emetin:** *The Critic and Guide* for December comments on emetin in the treatment of hemoptysis. Impressed by the prompt disappearance of blood from the stools in amebic dysentery, treated by the hypodermic injection of emetin, Doctor C. Flandin thought of the possibility of the drug's proving effectual in the treatment of hemoptysis, and the results have more than justified this anticipation. He used the remedy by injecting into the thigh, 1 c. c. (15 minims) of distilled water containing 0.04 ( $\frac{2}{3}$  grain) of hydrochloride of emetin. The result of the injection was surprising, the hemorrhage from the lung stopping immediately, no disagreeable sensation was experienced, no palpitation, dizziness, or nausea. In some cases there was no longer a trace of blood in the sputum, but usually there were occasional blackish clots for a time. In the more threatening cases, the hemoptysis may return, and consequently he repeats the injection twelve hours later and once on the following day to a total of five. With the exception of one case of galloping tuberculosis, the tendency to pulmonary hemorrhage was definitely arrested in all his eight cases, as also in twelve others in the experience of other physicians. He determined the arterial pressure before and after the emetin, and was unable to note any appreciable change in this or in the coagulation of the blood or the blood-count. The measure seems to be entirely harmless and has succeeded when all others have failed.

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**Infantile Scorbutus:** *The New York Medical Journal* for November 22d treats of the early diagnosis of infantile scorbutus. Koplik urged, some time ago, the importance of an early diagnosis in infantile scorbutus. The importance of this statement is increasingly asserting itself. It is too often the lot of consultants to witness even advanced cases of the disease treated as instances of rheumatism, syphilitic epiphysitis, poliomyelitis, osteomyelitis, rachitis, purpura, infantile myxedema, and other disorders which include in their symptomatology one or more symptoms of scorbutus. De Sagher (*Annales de Medicine et Chirurgie Infantiles*) recently referred to a number of patients in whom coxalgia, osteomyelitis, and pseudoparalysis of syphilitic origin had been diagnosed, and in one instance, as to the last named disease, by a highly competent pediatrician. This emphasizes sufficiently the need of avoiding the oversight committed by the practitioner, who, according to Northrup, admitted in consultation that he had "clean forgotten infantile scurvy."

As urged by Hutinel, infantile scorbutus should always be thought of first in every case of painful paraplegia in an infant, even when a child shows any degree of uneasiness when its legs are touched, or when there is any tenderness on handling. These signs are usually first noticed when the babe is bathed. Even the paresis may not be noticeable, there being a voluntary tendency in a child who has learned to walk to avoid doing so owing to the pain it causes. The swelling and purplish discoloration of the gums seldom appear unless there be teeth. When present as initial symptoms, they are often mistaken for difficult dentition and the gums lanced without, of course, the least benefit. On the whole there is probably no disease which proves more misleading to the general practitioner,



and it is probable that it is only regarded as a rare disease because it is very seldom recognized. That infantile scorbutus is due to food deficient in materials needed by the child to carry on adequately the nutritional process is too familiar to require emphasis. Prominent as a cause, however, is exaggerated sterilization of the milk fed to the child. While sterilization at proper temperature cannot be definitely proved to deprive the milk of those properties (apart from its clinical effects), any degree of heat approximating the boiling point is known to be destructive to all the enzymes to which the milk owes its chemical properties. But this is not the only pathogenic factor. As stated by Crozier Griffith, the majority of infants with scurvy have been fed upon some proprietary food. This fact, the early symptoms mentioned, the age of the child—nearly always between the fifth month and the end of the second year—and finally the wonderful curative effects of a change of diet and of fresh fruit juice, particularly that of the orange, are diagnostic features which should do much to prevent errors that entail a fatal issue in practically every instance.

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**Hormones:** Murray B. Gordon, *The Medical Review of Reviews* for December, writes as to hormones and their therapeutic application, that the experimentation and findings in the function of the so-called ductless glands, with their internal secretions, have changed the views expressed in the text-books on physiology of a few years ago. A more rational and scientific method of treatment has been evolved through these findings. The term hormone was coined by Starling as a designation for a group of substances formed during normal metabolic changes of certain cells of the animal organism. They are secreted during the performance of normal body functions, and are carried by the circulation to certain organs which they stimulate to a specific action. A peristaltic hormone has been found in the spleen by Zuelzer. It is supposed to be secreted by the gastric-mucous membrane and stored in the spleen. An extract of this, to which he has given the trade name of "Hormonal," has been used intravenously, in doses from 10 c. c. to 40 c. c., in cases of chronic constipation and intestinal paresis with some beneficial results. Some observers deny the existence of a splenic hormone because the extirpation of the spleen does not interfere with life. On its removal the lymph glands do its work with an accompanying change in the blood, shown by an increase in the lymphocytes, and a decrease in the red blood cells, which, however, return to normal in a few weeks. Harrower however believes, as Bayle does, that splenic extract contains a hormone and that it is of great benefit in the treatment of tuberculosis. Splenic extract has also been found of great benefit in typhoid and malaria. In these diseases the spleen is very much disturbed, and it seems rational to expect relief and aid in the use of the extract. According to Von Noorden, diabetes is a complicated disease in which the hormones of the suprarenal glands, the pancreas, and the thyroid gland are intimately associated with the action of the liver cells. The regulation of the action of diastase on glycogen, changing the latter to a soluble sugar, depends upon the hormones of these three glands. Extraction of a pure pancreatic hormone, in form adaptable to internal administration, should prove of great benefit in the treatment of this disease. The thyroid produces a substance which can be recognized as a hormone. Its form of action is not exactly known, but that it plays an important part in the normal metabolism of the body has been accepted. The thymus hormone is mentioned because of the inter-relation that exists between the thymus and thyroid glands, as is shown in the compensatory hypertrophy of the thymus gland in exophthalmic goitre. The thymus extract is given to prevent this by supplying the system artificially with the required thymus hormone. Several observers, among them Weiss and Jolis-Cohen, advocate the use of organotherapy in the treatment of asthma. Though this method of treatment is still in its infancy, or the experimental stage, it obviously is more scientific

than the use of morphin, cocain, and similar sedatives. An extract that bids fair to supersede ergot, quinin, and strychnin in cases of uterine inertia, is that of hypophysis. The action of the anterior and posterior portions of this gland are opposed to each other. Animals may live after extirpation of the posterior but not of the anterior portion. It has an action on the blood pressure similar to that of adrenalin. Its chemical action is not yet fully known, but it is probable that it is due to the presence of certain amines. According to Quigley, the action of pituitrin may be summed up as follows: (1) It increases contractions in labor, the effect being noted in from two to fifteen minutes after injection, and lasting about 90 minutes. The pains are greater in intensity, duration and frequency, and are of normal character. (2) It raises blood pressure and slows the pulse. (3) It prevents vesical atony. (4) It causes contraction of the uterus after third stage in hemorrhage. (5) It lessens the length of third stage. (6) It increases temporarily the breast secretion. (7) It cannot, per se, induce abortion, but is of great aid in one that has already begun, and dilatation is present. (8) It cannot induce labor at full term. The dosage is 1 c. c. given intra-muscularly, and repeated in sixty to ninety minutes if no results are seen. A blood pressure of 150 or over, myocarditis, nephritis, a disproportion between the size of the presenting part and the pelvis, and a contracted pelvis are contra-indications. It is not advisable to use it unless the os is dilated or dilatable. It is dangerous when a high contraction ring is formed, and in cases where there is not sufficient molding, the possibility of uterine rupture must always be considered. The consensus of opinion is that it is an efficient drug in selected cases, not presenting any of these contra-indications, and should be used only after the cause of the uterine inertia has been diagnosed.

## The Academy of Medicine of Cleveland

### ACADEMY MEETING

The one hundred and fifth regular meeting of the Academy of Medicine, the Annual Meeting, was held at the Cleveland Medical Library, Friday, December 19, 1913, with the President, H. L. Sanford, in the chair.

The program was as follows:

#### **A Study of Repeated Caesarean Sections, by Asa B. Davis, New York City.**

After the first Caesarean section has been performed, shall the patient be rendered sterile or shall she be subjected to the same operation with subsequent pregnancies? Whenever an anaesthetic is administered, there is a certain amount of danger. Whenever an abdominal operation is performed, certain risks are run from sepsis and other complications, but improved technic and skill have rendered the danger less than ever before. So it is with the Caesarean section. More of these operations have been performed in the last five years than ever before. Maternal mortality in clean cases is not more than two percent, while the danger to the child is practically nil. Yet the Caesarean section is commonly believed to be a terrible one and sterilization is often advocated.

Laceration of the cervix and perineum in forceps delivery, with unsatisfactory repair of the damaged parts may disable the patient for life. Operations for repair are more or less unsatisfactory and the patient always returns for relief. Yet the suggestion is never made that such patients should be rendered sterile.

The present tendency in surgery is to save every organ, and, if possible, restore it to functional activity. Our policy is to render the patient sterile after Caesarean section, only when unusual pathological conditions place the life of the patient in jeopardy. The wishes of the husband and



wife are disregarded, for the responsibility which the physician would have to assume in such cases is too heavy. Every case of Caesarean section is serious but the obstacles which it is designed to overcome are serious and it is meeting them.

There are only two conditions which sometimes arise from the operation of Caesarean section which increase the danger at subsequent pregnancies, namely the possibility of rupture through the old uterine scar and the formation of extensive adhesions. If the patient can be kept under observation during succeeding pregnancies and the Caesarean section repeated just before term, in other words, before the contractions of the uterus have tested the strength of the scar, the first of the dangers mentioned fails to materialize. The patient, when operated at this time, has not been exhausted by long continued labor pains and is in good condition. The chances for the child are also better in such a case, and in addition the operation can be set for the most favorable time. As a matter of fact, in a case in which rupture did occur following Caesarean section, it was found that the scar tissue at the site of the old incision had held and that the tear was located in the thinned lower segment of the uterus.

There is one danger in operating a patient following a previous Caesarean, namely when contracted pelvis and deformity of the spine coexist and when the patient had failed to report promptly at the onset of pregnancy, for the fetus in such cases may be held in the abdomen and appear nearer full term than it really is. Patients who do not report their condition promptly to their physician are the ones who meet with trouble in repeated Caesareans.

As to intra-abdominal adhesions, and their danger, these can be partially prevented by the same precautions which are taken to render the uterine scar firm, namely the observance of strict asepsis, seeing that the fragments are in good but not too close apposition and by suturing through the whole thickness of the uterus and then carefully suturing the peritoneum over it. Adhesions can also be minimized by making only a small incision through the abdominal wall, in the median line, just above the umbilicus, and in not removing the uterus from the abdominal cavity. Adhesions may occur in cases where the suture material fails to hold or where raw edges are left. One patient under observation had Caesarean section performed six times without harm and each time a living child was delivered.

Contracted pelvis is the main indication for Caesarean section, also eclampsia and placenta praevia. The fact that Caesarean section has been performed on a patient once, does not mean that she can never be delivered without operation in subsequent pregnancies. One patient was operated because she was carrying an abnormally heavy child, another for impacted fibroid of the uterus and two others for eclampsia. Later these patients passed through normal unassisted deliveries. In all these cases the indications for Caesarean section were absolute.

A. H. Bill, in opening the discussion said that the field of usefulness of the operation for Caesarean section was constantly widening and that much of this was due to the good work of the speaker of the evening and his associates, who had done much to develop a proper technic. The question which confronts every practitioner is whether a patient after Caesarean section should be sterilized, whether she should be so advised, or whether, if she becomes pregnant again, she should be aborted? Only in rare cases should either of these be done, and then not on the ground of the previous Caesarean section,—there must be important accessory reasons. The like or dislike of the patient should play no part in these latter.

Patients who have been subjected to Caesarean section are often advised against becoming pregnant in the future. Then when such patients do become pregnant they worry about their condition and want to be aborted. Therapeutic abortion is never indicated by previous

Caesarean section. In cases where the Caesarean section has been performed for other reasons other than contracted pelvis we can depend on the uterine scar holding in subsequent pregnancies.

W. H. Humiston, thought that the subject of Caesarean section was of especial interest to general practitioners since they do practically 90 percent of the obstetrics. The dangers of the high forceps delivery cannot be too strongly emphasized. In the hands of the general practitioner it is a major operation. It results generally in the death of the child, and in enormous damage to the soft parts of the mother, often placing her life in jeopardy.

A patient should never be sterilized after Caesarean section. In competent hands the Caesarean is one of the easiest of abdominal operations, for the patient is in good condition. Why should there be any mortality in these cases, unless the patient has been contaminated at previous examinations, where aseptic precautions were not sufficiently observed.

Some years ago a patient came under observation on whom a high forceps delivery had been performed a year before. She suffered from backache and intestinal disturbance, and was practically an invalid. At the time of delivery the cervix, pelvic floor and perineum had been extensively lacerated and when examined it was found that the posterior vaginal wall was bulging and the uterus was prolapsed. She was operated on and made a good recovery. Both she and her husband had an intense desire for children and she shortly after became pregnant.

Near the end of pregnancy she entered the hospital. After labor began and the cervix was well dilated, a Caesarean section was performed and a healthy child delivered. The patient was out of bed nine days after operation. There were no complications.

A. J. Skeel, emphasized the point that while Caesarean section was a favorable operation in selected cases, it is not necessarily so in all cases, as for instance where labor has been protracted and manipulation and forceps delivery attempted. The mortality in selected cases is two percent, in unfavorable cases it is probably fifteen or twenty percent. When we think of the Caesarean section we should bear in mind that it is favorable as an early and unfavorable as a late procedure. After Caesarean section should a woman be allowed to deliver herself? If the risk is more than two percent then the repeated Caesarean would seem preferable.

J. J. Thomas asked whether after a Caesarean operation, pubiotomy could not be substituted to advantage in succeeding pregnancies?

J. E. Tuckerman asked if it is not possible that in some cases where Caesarean section has been performed, the child could have been delivered normally, in other words, how accurately can the size of the child's head be estimated?

Asa B. Davis, in reply said that the mortality in high forceps cases is much greater than after Caesarean section. The injury sustained from the former cannot be compared with the latter. When Caesarean section is done on primiparae, such patients practically remain primiparae.

The high forceps operation is extremely dangerous. One case which came under my observation had been attended by a physician of wide experience who had in his life time confined approximately eight thousand cases. Yet this woman sustained bursting lacerations of the vagina over the left ischial spine, developed a bad streptococcus infection and died within thirty-six hours.

The neglected cases for Caesarean section are the distressing ones, such as patients who have been in labor for a long time. The speaker said that he had had no experience with pubiotomy. Indications for this operation exist, however, and some children who are lost might be saved by this procedure. It is not an attractive operation, however, and recovery and results attained are in the main better when Caesarean section is employed.



On motion by A. H. Bill the Academy extended a hearty vote of thanks to Doctor Davis for his most interesting and instructive paper.

The annual reports of officers and standing committees were submitted and received.

The Secretary, J. E. Tuckerman, reported as follows:

The Academy has held nine meetings during the last year, with an average attendance of 85, an increase of 13 over the average for 1912. Eighteen papers were presented; eight by local men, thirteen by men from other cities.

The membership is as follows:

	1913	1912
Active . . . . .	474	464
Non-resident . . . . .	87	88
Associate—Attorneys . . . . .	7	14
Dentists . . . . .	2	2
Pharmacists . . . . .	8	10
Veterinarians . . . . .	19	18
Miscellaneous . . . . .	2	3
Honorary . . . . .	8	7
Non-active . . . . .	1	4
Total . . . . .	608	610

Increase in active membership, 10.

Decrease in total membership, 2.

Elected to membership during the year: Active, 25 (1912, 12); non-resident, 1 (1912, 2). Transferred to membership: Active, 1. Reinstated: Active, 2; nonresident, 1. Transferred to non-active membership as a mark of esteem, C. F. Dutton. Losses in membership during the year: Deaths, 2; resignations, 3 (2 active, 1 associate); suspended, 22, for nonpayment of dues (10 active; 4 nonresident; 6 associate-attorneys, and 2 associate-pharmacists).

In 1912, 31 were suspended for nonpayment of dues—16 active, 7 non-resident and 8 associate.

It will be noted that in spite of losses in membership by death, resignation and suspension for nonpayment of dues, the active membership has been increased by 10, against a decrease of 12 in 1912.

The loss in total membership due to suspension for nonpayment of dues is in the associate membership—chiefly in the Medico-Legal Section.

Seventy-one members of the Academy attended the Annual Outing held July 16th, at Avon Beach Park.

The Council has held 11 meetings during the year, full reports of which have been published. At its December meeting the annual reports from the Sections were received, a brief summary of which is as follows:

Section—	No.	Av. attend.	Presented		
	Meetings		Papers	Cases	Specimens
Clinical and Pathological	8	56	19	00	6
Experimental—Medicine	8	57	24	00	0
Ophth.-Oto-Laryngological	7	17	11	19	14
Veterinary . . . . .	8	10	9	0	0

The Ophthalmological-Oto-Laryngological Section had 25 case reports. The Clinical Pathological Section had one speaker from out of town; the Veterinary Section had four.

No report was received from the Medico-Legal Section or from the Medico-Pharmaceutical Section, which, however, asked the time to reorganize during the ensuing year.

The Secretary wishes to express his appreciation of the willing co-operation of members of the Council, the members of committees and the secretaries of the Sections who have made possible the excellent meetings and the increase in active membership, which it has been his pleasure to report.

The Treasurer, J. E. Tuckerman, submitted the following report:  
 The Treasurer's books were closed and audited on Dec. 18, 1912.  
 The receipts and expenditures were as follows:

Balance on hand, Jan. 1, 1913.....	\$ 584.82
Receipts:	
Membership dues and admission fees.....	2,512.50
Disbursements:	
Ohio State Medical Association.....	\$ 684.00
Medical Library Association.....	456.00
Cleveland Medical Journal Co.....	456.00
O. S. Hubbell Printing Co.....	427.20
Secretary-Treasurer's Salary .....	300.00
Willis S. Hobson (Annual Outing).....	44.60
J. C. Harding .....	31.50
Martin Printing Co. (Rosters).....	27.00
Enterprise Construction Co. ....	16.36
Horace Carr .....	7.85
Empire Electric Construction Co.....	5.09
Elliott Addressing Machine Co.....	4.74
Receipt-Label Co. ....	4.25
Cleveland Window Glass Co. ....	4.00
Davis & Farley .....	2.50
F. W. Roberts Co.....	2.10
Miscellaneous . ....	9.03
Balance on hand Dec. 12, 1913:	
Savings Account .....	500.00
Checking Account .....	115.10
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	\$3,097.32 \$3,097.32

#### COMPARATIVE STATEMENT 1912-1913

	1912	1913	Decrease	Increase
Receipts . ....	\$2,487.00	\$2,512.50		\$25.50
Expenditures . ....	2,610.70	2,482.22	\$ 128.48	
Balance December .....	584.82	615.10		30.28

The Treasurer's report was certified as correct by the Auditing Committee.

F. T. Kopfstein, chairman of membership committee, reported the death of one active member, Doctor Henry Swift Upson.

The number of applications received to date as 32 for active membership and 1 for non-resident membership. Of the 32 applying for active membership, 25 have been elected, and 1 non-resident membership.

C. E. Ford, Chairman of the Legislative Committee, for the year 1913 submitted the following report:

Your committee consisted of Doctors R. E. Skeel, C. W. Eddy and C. E. Ford, Chairman.

Two memberships were unfilled, for the reason that it might be advantageous to utilize on the committee men who were interested in special subjects.

Your chairman, in conjunction with chairmen from other sections of the State, formed a committee, which had to do with the writing of many legislative acts relating to the practice of medicine, midwifery and nursing, among which may be noted:

H. B. 114, Winters. "Regulating practice of natural methods of healing." Left on House Calendar.

This bill was introduced by the various cults of the state who were organized into a state Natureopathy society and included the Chiropractors, Suggestive Therapeutics, those who practice the Knief System and others.



H. B. 116, Carroll. "Regulating the practice of Optometry." Left on House Calendar.

H. B. 263, King of Ashtabula. "Providing for medical and dental inspection of school children." Left on Senate Calendar.

A splendid provision that should have been passed.

H. B. 264, King of Ashtabula. "To conserve the health of people and prevent disease." Otherwise known as the County Health Officers' bill, with which we are all familiar.

H. B. 287, Jenkins. "Relating to township and municipal boards of health." Left on Senate Calendar.

Providing that where health officers refuse to do their duty, the State Board of Health could have them removed, and if a local health board or council refuse to appoint another, the health board could appoint. This would have been splendid authority for the Board of Health in flood districts, especially in the smaller places where the clerk of the council or township acted as health officer and did not use or would not perform his duty.

H. B. 288, Duffy. "To provide for the investigation of Friedman treating tuberculosis." Left in House Committee.

H. B. 331, Deaton. "To prevent practice of fraud and extortion on sick and afflicted." Left in House Committee.

A provision to prevent the collection of notes signed by patients who have been promised cures, unless cures were effected and the agreement complied with. It also provided that where such promises were made and notes received, that a bond of three times the amount stipulated for the cure, should be given the one promising, and providing ample penalties.

H. B. 409, Thomas. "Giving the State Boards of Health the right to enter upon property to make examinations." Left in Senate Committee.

H. B. 439, Duffy. "To prevent the spread of disease and conserve the public health." Left in House Committee.

This bill provided for an inspection of those employed in the handling of foods and drinks, and with special reference to those afflicted with tuberculosis, infection and venereal disease, with proper penalties, etc.

H. B. 471, Behns. "To prohibit advertising of the practice of medicine, surgery, osteopathy or midwifery." Left in House Committee.

This was a very radical bill, which would have prohibited the professions mentioned from the use of stationery on which their names were printed as well as prohibited the use of cards, photographs of advertisements in any publication. We thought at the time that it was introduced with a view of embarrassing us.

H. B. 474, King of Ashtabula. "Relating to vital statistics."

It corrected that part of the vital statistics law which was declared unconstitutional by the Supreme Court, where any unnecessary information was requested of physicians. Passed, approved by the Governor and filed April 26th.

H. B. 545, Boggs. "Relative to number and compensation of members of boards of health." Left in House Committee.

The bill provided that municipalities should have a board of health of not less than three or more than five, and that council should fix their bonds and compensation.

S. B. 114, Dollison. "Making it unlawful to solicit money of persons in any of legal, medical or dental service." Left in Senate Committee.

The penalty for such solicitation was a fine of \$500.00 and an imprisonment of not more than six months. Senator Dollison's heart was in the right place but his bill seemed too radical.

S. B. 115, Weygandt. "To establish a bureau for studying the prevention of tuberculosis." Left in House Committee.

This is one of the health board bills that failed. It provided for a bureau and such moneys as the board would need, but did not specify any amount. It is possible that the defects caused its failure to receive consideration.

S. B. 142, Hopple. "Repealing section giving Board of Health power to suspend sanitary policemen." Passed. Approved by Governor and filed May 8th. As the law now stands, sanitary policemen can be suspended by the board of health, thus giving the board exclusive control of its appointees.

S. B. 144, Seward. "To admit to practice of osteopathy without examinations, persons holding certificates from other states." Left in Senate Committee where it should have been, since it provided for no preliminary or osteopathic educational qualifications, and was an attempt to favor one of his clients.

S. B. 167, Potting. "To protect public health by regulating the overloading of street cars and other public conveyances." Indefinitely postponed.

S. B. 182, Mr. Cook. "To supplement the law compelling the regulating of vital statistics." Left in House Committee.

Same as House Bill 472, which became a law and so this bill "died."

S. B. 218, Cahill. "Defining qualifications of those who take an examination to practice midwifery." Passed, approved by Governor and filed May 9.

Midwives must now have the same preliminary education as physicians and surgeons, and must be graduated of reputable schools of midwifery before being submitted for examination.

S. B. 220, Kiser. "Prescribing qualifications of those who take examinations to practice medicine and surgery."

This is the title given for the bill but in reality it was an amendment to several sections of the medical practice act. Medical colleges that do not require for matriculation qualifications equivalent to a first grade school, shall be refused recognition by the state medical board.

A definite reciprocity fee of \$50.00 was made legal, and in two or three sections provision is made implying that the Board may suspend as well as revoke certificates.

Another amendment proposed by our joint committees, defined what should constitute gross unprofessional conduct, was not introduced. It is, however, ready for the next session.

The law was amended establishing reciprocity in osteopathic licensure, thus repealing the law which provided that osteopaths who had practiced in other states for five years, might be registered without complying with the regular requirements laid down by the law.

Certified statements from the Secretary of the Board concerning the non-registration of any person must now be accepted by state officers and courts.

S. B. 230, Zmunt. "Abolishing office of coroner and creating office of county examiner." Left on Senate Calendar.

S. B. 249, Hillenkamp. "Permitting oleomargarine to be colored if coloring matter is not unwholesome." Left in Senate Committee.

S. B. 251, Mooney. "Creating the office of Commissioner of Health." Left in Senate Committee.

This bill would have done away with the present State Board of Health.

Your committee would draw your attention to the new Poison Law enacted by the last session of the legislature, which absolutely prohibits the sale of cocain, morphin, codein and their salts in any quantity, no matter how minute, in bulk or in any combination with any other preparation or compound, except upon prescription. Morphin formerly sold in drams, and any preparation containing morphin in excess of one-fourth



grain to the fluid ounce, shall only be sold upon prescription. Cocain in excess of two grains to the fluid ounce must be sold upon prescription. Heroin and its salts, in compounds and preparations, can only be sold upon prescription, unless the preparation contains one-quarter grain or less to the fluid ounce.

There are many points of interest to the practicing physician that cannot be dwelt upon in this report. Your committee would recommend that physicians consult the editorial columns of the Ohio State Medical Journal for October.

In conclusion, your committee would recommend that physicians interest themselves, both as individuals and as organizations, in matters concerning medical practice and public health. Medical organizations could be of incalculable value in shaping good legislation and preventing that which is fantastic.

The election of officers for the ensuing year resulted as follows: President, J. J. Thomas; First Vice President, Russel H. Birge; Second Vice President, W. H. Weir; Secretary-Treasurer, J. E. Tuckerman; Trustees, R. E. Skeel and E. O. Houck.

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## EXPERIMENTAL MEDICINE SECTION

The seventy-first regular meeting of this section was held Friday, December 12, 1914, at the Cleveland Medical Library, T. W. Todd in the chair.

The following program was presented:

### 1, Determination of the Real Acidity of Urine, by H. D. Haskins.

The substances in urine which account for its acidity are, in addition to the acid phosphates, free phosphoric, lactic, and acetoacetic acids, and their salts as well as free beta-oxybutyric and free uric acid. We find all of these present in a very acid urine, while in less acid urines practically all of the acids are combined as salts. In still less acid urines, the acidity is due almost entirely to the acid phosphate. An alkaline urine contains more of the alkaline phosphate than of the acid phosphate, and beyond the point of slight alkalinity the urine contains bicarbonate.

The real acidity can not be determined by titration for this merely converts the acid phosphate into the alkaline phosphate, and urines of the same true acidity, the same reaction, may give entirely different titrations. The acidity depends upon the H-ion concentration, while alkalinity depends upon the presence of the OH-ion. The electrometric method is the standard method for determining the ion concentration, but this has the disadvantage of being tedious and cumbersome. Lørensen found that he could get practically the same results by using indicators, for at certain degrees of acidity, gradations of color could be distinguished, and these denoted an acidity of a certain concentration. Henderson of Harvard applied this to acid estimations of urine.

A set of standards of known reactions and ion concentration are made up. These give nine variations between the extremes of very acid and very alkaline: three are definitely acid three approach the neutral point; three are definitely alkaline. The indicators used in these sets of threes are, respectively, methyl red, para-nitrile-phenol, and neutral red. These give nine different shades of color. The urine, by reason that it has a strong natural color of its own, is diluted with twenty-five parts of distilled water, the proper amount of the appropriate indicator is added and a color comparison is made. The acidity of the urine is thereby approximately determined. Two precautions must be taken; test the glass-ware for free acid and alkali; boil the distilled water to expel carbon dioxide and ammonia.

Work thus far has been confined almost entirely to normal urines. In over 70 percent of the 24-hour samples examined, the acidity expressed in negative logarithms, lies between 5.9 and 6.75. Meat-free diets tend to give a larger number of urines of a somewhat higher acidity, while an

ordinary diet tends to give one of low acidity. Contrary to the belief that a concentrated urine is highly acid, it was found that many of these urines were of low acidity. Fifty percent of the cases examined showed the night urine to be more acid than that of the remaining twenty-four hours. The urine taken just after breakfast was found to be of a comparatively low acidity in fifty percent of the cases examined. It was found that the acidity might vary within very short periods of time. Sweating causes an increase in acidity, and the latter is more frequently higher in summer and lower in winter.

Urines of a low acidity may occur in pathological, as well as in normal cases. Urines of high acidity are found in some cases of nephritis, in heart cases where there is broken compensation, and in certain fevers.

## **2, Vaso-Motor Control in the Extremities, by R. G. Pearce.**

These experiments were done while working in the laboratory of Doctor Asher in Bern. The investigation was conducted with the object of demonstrating the vaso-motor control of the vessels of the legs of the frog; to observe the changes brought about by the stimulation of these nerves, and to correlate these changes with those brought about by the administration of drugs.

In preparing the frog for the experiment, cannula was inserted in the aorta, and also one in the vein of the leg. Tyradés solution was perfused, under constant pressure, and the outflow was recorded by a drop marker upon a drum.

Vaso-constrictor fibres were easily demonstrated by electrical stimulation of the anterior roots of the lumbar nerves, but dilator fibres in the posterior roots could not be demonstrated by any such means, although every possible strength of current, and variation of technic was employed. Upon one occasion an increase in the flow from 13 to 16 drops per minute was obtained by lightly pinching the posterior roots. When working with frogs in which the anterior roots had been severed several days previous, dilation was easily demonstrated by stimulation of the posterior root. The outflow upon stimulation being markedly increased. It may be necessary to cut the anterior roots because the constrictor fibres are too tonic to allow the dilator fibres to respond to ordinary stimuli.

Cannon and Lyman have shown that small doses of adrenalin cause a fall in blood pressure. Ogawa, in perfusing weak adrenalin through the frog, obtained at first a constriction followed in thirty-five minutes by vaso-dilation. In my own experiments I got only contraction with adrenalin, and changes in temperature did not vary the results. Curare likewise showed no effect.

Bayliss and Hooker claim that carbon dioxide, when perfused in Ringer's solution, causes vaso-dilatation, and Gaskell claimed that he got a similar result with lactic acid. My results showed vaso-constriction; in both of the above cases, though dilatation was obtained when ordinary lactic acid was perfused with Ringer's solution. These differences indicate that there must be something present at one time that is absent at another. It is thought that the H-ion concentration may be the determining factor: the condition of the blood vessels may also have something to do with it. In some frogs with partially degenerated nerves, dilatation of the vessels followed the injection of weak adrenalin, however in others under the same conditions, a greater than normal constriction was observed. The reversal in reaction during degeneration has been observed by Daly in the action of the vagus on the heart. Perfusion of a pure saline solution causes adrenalin to give a dilatation of the vessels in place of constriction. The addition of Potassium and Calcium to the solution will change the action to normal.

Ergotoxin followed by adrenalin causes vaso-dilatation. Adrenalin which normally causes a constriction of the bronchi, fails to do so after certain drugs. In general the effects of adrenalin seems to be conditioned by the condition of the artery, the concentration of the electrolite in the



perfusing fluid, and the condition of the frog, which is probably dependent upon seasonal differences.

Torald Sollmann in discussion, expressed the opinion that action of epinephrin upon normal vessels would depend upon the *kind* of vessel. Several years ago, some work was done upon the carotid artery; if memory is correct, all efficient concentrations of epinephrin caused dilatation.

It seems improbable that the difference in the action of Ringer's solution and Tyrde's solution depends upon the concentration of the H-ion. The difference in the concentration of the Ca-ion would be a more plausible explanation, if it is true that it is to be explained by ion-concentration.

Epinephrin will show a dilatatory effect upon the excised kidney if the latter is kept long enough for the constrictor fibres to degenerate. The sympathetic action of epinephrin is very striking and it is possible that its action may be reversed.

### 3, Experiments Bearing on the Nature of Anaphylactic Shock, by R. G. Pearce and T. F. Zucker.

In the condition of anaphylactic shock which follows the injection of the causative substance into the sensitized animal there are given two sets of symptom complexes. The one is typified in the guinea pig, in which there is acute bronchial spasm; the other, in the dog, giving a marked fall of blood pressure. The guinea pigs usually die an acute death, whereas the dogs, as a rule, recover. Pearce, Eisenbrey, and Edmunds, working with dogs have shown that the fall in blood pressure is accomplished by an accumulation of blood in the splanchnic area. Manwaring, Foegtlin and Bernheim, have shown that this fall of blood pressure does not occur in dogs in which the liver has been removed.

The work here presented deals with anaphylactic shock only in so far as it is evident that it is identical with shock after peptone poisoning. Biedl and Kraus and many others have shown that in nearly all details and conditions the symptoms are alike.

The experimental results obtained so far are, briefly:

1. Peptone plasma which has undergone no coagulation changes, has marked vaso-constrictor properties.

2. Upon the injection of peptone, the pressure in the portal system rises; and previous work has also shown that there is a coincident fall in the cava and systemic pressure.

3. It has been shown that when a solution containing peptone is perfused the outflow from the liver is lessened.

4. When a peptone solution is perfused through an excised liver it acquires marked constrictor properties, whereas an ordinary peptone solution has but a minimal constrictor action on artery rings.

In conclusion we propose as a causative factor in the condition of anaphylactic shock and peptone shock, the vaso-constrictor action of the blood exerted upon the liver. This is accompanied by an agglutination of blood platelets and leucocytes which collect in the liver, and it is these that probably assist in causing the circulatory block.

We have not as yet worked with the guinea pig, but it appears from the work of others that it may be possible to explain the symptoms in this animal upon the same basis, i.e., the constrictor action of the blood upon the bronchioli.

J. E. Tuckerman asked, in discussion, about the probability of a clot causing the block in the liver.

Torald Sollmann thought that this explanation of the cause of anaphylactic shock was quite plausible. He called attention to the fact that the constriction of the blood vessels in the lung and the constriction of the bronchioli were two separate and distinct actions.

T. F. Zucker, in closing, said regarding the probability of clot causing the block, that this was unlikely for peptone blood will not clot. The damming back in the liver is due to plugging with leucocytes and platelets plus the constrictor action of the blood.

#### 4, Glycolysis in Blood, by J. J. R. Macleod and A. M. Weed

Does blood possess the power of destroying sugar? Much of the confusion in the answer to this question is due to the fact that the activity of the glycolytic process varies extremely in the blood of different classes of animals. Thus A. Loeb has found that glycolysis is most marked in the blood of the dog, being also considerable in that of man and sheep; on the other hand it has been found almost absent in the blood of the ox and pig.

The present research has been made with the object of demonstrating whether the process of blood glycolysis plays any role in the consumption of carbohydrate in the intact animal.

Method:—The blood from the femoral vein or artery of etherized dogs was collected in sterile flasks, under strict aseptic precautions. In the majority of the experiments the blood was defibrinated and then transferred to small sterile Erlenmeyer flasks which, after being closed by sterile cotton plugs, were suitably fixed to a holder which was kept in motion by means of a motor. The holder was placed in a water bath at 40° C. After varying periods of time the flasks were removed and the sugar was determined by Bertrand's method, the proteins having been first of all removed by means of colloidal iron. The sugar was similarly determined in a control sample of blood before incubation. Bacteriological examinations were made which eliminated the possibility of bacterial destruction of sugar.

The results of these experiments may be briefly stated.

1. Unclotted and defibrinated blood have the same glycolytic power, but potassium oxalate, in concentrations of one per thousand and over, has a depressing action.

2. The rate of glycolysis varies from time to time in the defibrinated blood of the same animal. It therefore varies also in the blood of different animals of the same species.

3. On an average, about one-half of the original amount of dextrose disappears in two and one-half hours from the blood kept outside the body at 40° C.

4. Glycolysis is a function of the corpuscles and is absent in the serum. It disappears from the corpuscles after frequent washing with isotonic saline.

5. The addition of dextrose to blood does not materially increase the extent of the glycolysis occurring in a given time. In higher concentrations it may indeed depress the process.

6. The source of the dextrose, i.e., whether chemical or derived from glycogen by the action of glycogenase, bears no relationship to the rate of the glycolysis. Glycolysis proceeds at the same rate in the normal as in the "diabetic" blood.

7. Even under the most favorable conditions the quantity of dextrose which the blood can destroy is only a small fraction of that which disappears in the same time in the intact animal. The glycolysis which occurs in blood is most probably of no importance in carbohydrate metabolism.

8. No evidence can be obtained of an increase of sugar as a result of allowing freshly drawn blood to stand at body temperature for varying periods of time up to one hour.

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#### ANNUAL REPORT OF THE MILK COMMISSION OF CLEVELAND FOR 1913

J. J. Thomas, Secretary of the Milk Commission, presented the following report, prefaced by a History of the Origin and Purpose of the Milk Commission.

As the Milk Commission of the Academy of Medicine was established nine years ago, there are doubtless many members whose connection with the organization is of more recent date to whom, therefore, the origin



and purpose of the Commission are unknown. There are, doubtless, many older members who were once familiar with the early history of the Commission, but who have forgotten it, for one reason or other. To inform the first group and to refresh the memories of the second I shall preface the annual report of the Commission with a short resumé of its reasons for being. During the summer of 1904, Doctor George W. Crile being president of the Academy, I suggested to the council, of which I was a member, the advisability of establishing in Cleveland a Milk Commission, whose function should be to arrange with one or more dairymen to produce and put on the market a pure milk for infants and invalids, under the supervision and control of a Commission, according to regulations to be mutually agreed upon, the product to be known as Certified Milk, the certification to be the guarantee of purity. It was pointed out to the council that the milk supply of the city was decidedly unsatisfactory, little or no control being exercised over its production or handling and that the special milk for infants was at least not above suspicion, being in the hands and entirely under the control of private parties, with no supervision, the purity of the milk being taken on faith. The problem was the same that confronted all large cities at the time, five of which, however, four in the East and one in the West, had seemed to have solved it by the establishment of Milk Commissions, following the lead of Newark, N. J., where the first Milk Commission was formed in 1893, by Doctor H. L. Coit, for the purpose of supplying a pure milk for infants. The results were so satisfactory in these cities that it was hoped the same methods might be applied with equal satisfaction in Cleveland. The suggestion was favorably received and a committee consisting of Doctor G. W. Moorehouse and the writer was appointed to prepare plans for the formation of the Commission. The committee recommended that a Commission of seven members be selected to be known as the Milk Commission of the Academy of Medicine of Cleveland, four members to be selected from the Academy.

The Homeopathic Medical Society was united to appoint two members from their body and the Chamber of Commerce to appoint one member. These societies agreed to co-operate and with the selection of the seven members, the Commission was established.

The Commission held its first meeting Dec. 4, 1904, and organized by selecting Mr. Samuel Mather as president, Doctor J. J. Thomas as Secretary-Treasurer, and Doctor G. W. Moorehouse, as Assistant Secretary. On Doctor Moorehouse's removal from the city, Doctor A. F. Furrer was appointed to succeed him.

The personnel of the Commission has not changed since the organization, except that Doctor Gerstenberger was selected by the Academy to fill the vacancy made by the death of the lamented Doctor Edward F. Cushing.

The preliminary expenses of the Commission, amounting to some \$800.00, were taken care of by a fund subscribed by Mr. Samuel Mather, Mr. E. W. Oglebay and Mr. W. S. Tyler.

After numerous conferences, including a visit of inspection to the certified farms in the East by the Assistant Secretary and the Veterinary Inspector, regulations were adopted prescribing the methods to be used in the production of Certified Milk in every detail.

Considerable difficulty was experienced in finding a dairyman who would agree to produce milk under the rigid rules laid down by the Commission, but finally Mr. Geo. W. Canfield was persuaded to make the venture, and a contract was entered into between the Commission and Mr. Canfield, embracing the regulations adopted.

Certified Milk from Canfield's farm was first placed upon the market early in June, 1905. It met with a cordial reception by the medical profession, and apparently filled a long-felt need. The daily sales during the 8½ years have increased steadily, but not as rapidly as the size of the city would warrant. It would seem that the profession at large is not fully alive to the importance and the advantage of the use of Certified

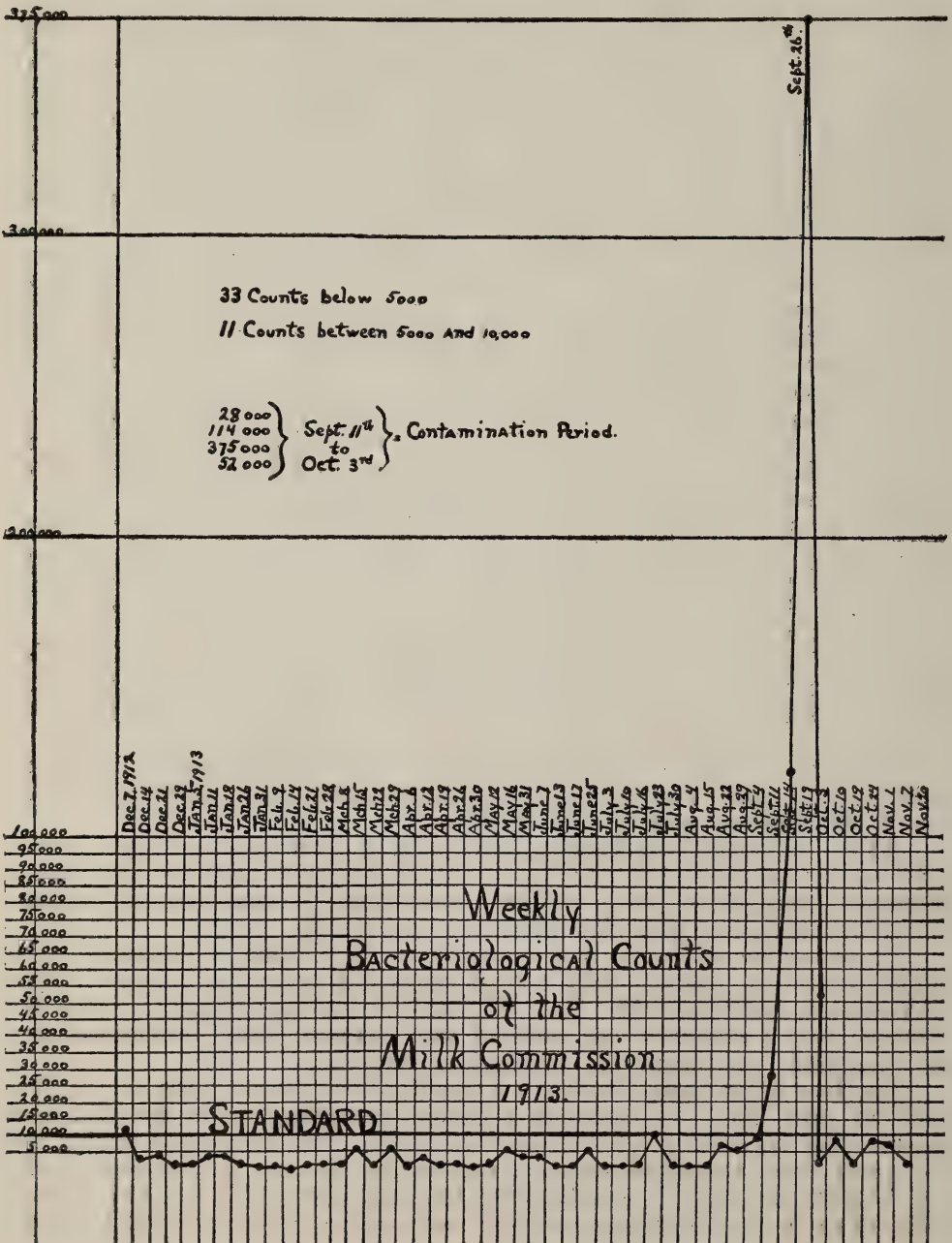
over ordinary milks, and the Commission would take this opportunity to urge the more extensive co-operation of the profession in its efforts.

The annual report for 1913 includes a review of the weekly bacteriologic tests made during the year, a summary of the tuberculin and chemical tests, as made by the experts employed by the Commission, and an outline of the origin and development of certified milk in Cleveland.

Appended to this report will be a copy of the contract recently entered into between the Commission and the Belle Vernon-Mapes Dairy Co., in regard to the rules and standards adopted in the supervision of the production of modified milk intended for infants.

*Bacterial Counts.*

Of the 48 weekly counts made, 33 were below 5,000; 11 between 5,000 and 10,000, and 4 were high. The latter 28,000, 114,000, 375,000 and 52,000 respectively, occurred between Sept. 11 and Oct. 3d, which represents the one period of contamination of the entire year.





One of the sources of this contamination was removed by the Superintendent at the farm a few days after the first high count was noted, when he discovered that an apparently healthy cow was giving milk of an offensive odor.

A special visit by our Veterinarian made the day following failed to reveal any other probable cause of the contamination either among the herd or at any point in the technique of the production of the milk. Daily examinations of the milk was then made for several days by the Chief Herdsman, Superintendent, Veterinarian and Assistant Secretary, the appearance of the milk as it was drawn from each quarter of the udder being noted.

A comparison of the physical properties of the milk, its color and odor from samples milked directly into test tubes revealed two other possible sources of contamination. These cows were immediately removed from the herd.

A bacteriological test of the wash water from 6 ten-gallon cans was made at this time to test the efficiency of our sterilizing plant. The cans were found to be sterile. The counts remaining up, we are forced to conclude that some unknown source of contamination remained for about ten days or two weeks, after the above described sources had been removed.

Two chemical examinations were made during the year, the result in each case revealing a milk coming well within the requirements of the standards of certified milk. Special tests are always made for the presence of adulterants or preservatives.

#### *Tuberculin tests.*

The annual tuberculin test performed last May, revealed three "reactors" out of 140 tested. These cows were removed from the herd at once and sold to be butchered.

The barns, floors and stanchions were thoroughly cleaned with soap and water, followed by copper sulphate and carbolic acid solutions. All cows added to the herd during the year were tuberculin tested by our Veterinarian and re-tested by him six weeks later. On the re-test from  $2\frac{1}{2}$  to 3 times the usual dose is always administered.

The health of the employees coming in contact with certified milk during the past year has with one exception been excellent. No serious communicable disease was reported.

The demand for certified milk has grown noticeably of late.

The average for 1912 was 538 quarts, the average for 1913, 740 quarts. The high production day was 955 quarts. These figures do not include 160 quarts of what is known as "bulk certified."

In the future all certified or modified milk customers that so desire may have their milk delivered in thermos boxes. A charge amounting to the cost of the material only will be made. A thermos box will prevent the milk from freezing in the coldest weather and will assure its remaining cold if delivered early in hot weather.

On Sept. 3d, 1913, a request was made by the Belle Vernon-Mapes Dairy Co. that the Commission assume regular supervision of the laboratory and the modifying of milk intended for infants. At a special meeting the Commission held Nov. 7th, it was recommended that the council of the Academy empower the Commission to assume such supervision and a committee was appointed to draw up a contract of standards and rules.

Nov. 15, 1913, a letter was received from the Secretary of the Academy of Medicine stating that at the meeting of the council, Nov. 12, 1913, it was "moved that the Milk Commission be empowered to supervise the methods of the preparation of modified milk by the Walker-Gordon Laboratory, and to enter into a contract with the Belle Vernon-Mapes Dairy Co. to that end."

Dec. 16, 1913, at the annual meeting of the Commission the contract of Standards and Rules drawn up by the Secretary and Assistant Secretary, was approved and the latter was appointed as the representative of

the Commission to supervise the methods and technique in the laboratory of the Belle Vernon-Mapes Dairy Co.

A copy of this contract of standards will be found appended to this report.

**Agreement Between the Milk Commission of Cleveland and The Belle Vernon-Mapes Dairy Co. of Cleveland, Ohio**

This agreement made this ..... day of December, 1913, by and between the Milk Commission of Cleveland, party of the first part, and The Belle Vernon-Mapes Dairy Company of Cleveland, Ohio, party of the second part, in regard to the standards, methods and technique to be adopted in the modification of milk intended for infants.

**Witnesseth:**

Said party of the first part and said party of the second part in consideration of their mutual promises one with the other, as hereinafter set forth, do hereby bind themselves to the following provisions:

Said party of the second part agrees that:

*First*—The milk from which it will make modified milk shall be known as "bulk certified."

*Second*—It shall cause said milk from which modified milk shall be made, to be sealed at the farm and shall allow said seals to be broken only at the laboratory and then only by a person to be designated by the party of the first part.

*Third*—It shall cause a sample of "bulk certified" to be taken, at least every other day, for bacteriologic testing, and shall cause a record of the same to be kept on file at all times for reference.

*Fourth*—It shall have in charge of the modifying laboratory and the separating apparatus, only men who are in sound health and free from any communicable disease, and will hold such men accountable for a high degree of personal cleanliness.

*Fifth*—It shall cause all receptacles used in the modification of milk to be washed and sterilized in a manner satisfactory to the representative of the party of the first part.

*Sixth*—It shall cause the capping and sealing of all bottles containing modified milk to be performed in a scrupulously clean and expeditious manner, and shall cause its employees engaged in such capping and sealing, to give special attention to the proper cleansing of their hands.

*Seventh*—It shall cause its bacteriologist in charge of the men engaged in the process of milk modification and cream separation to supervise daily such process and to ascertain daily whether the men engaged in such process appear to be in sound health or have been exposed to any major communicable disease, and shall hold him responsible for the general appearance of the laboratory and the technique employed therein, and shall cause him to supervise the manner and method of cleaning and sterilizing all receptacles coming into contact with modified milk.

*Eighth*—The bacteriological standard of "bulk certified" shall be the same as that required of certified milk, that is, 10,000 per cubic centimeter.

*Ninth*—The bacteriological standard of the 32 per cent cream used in modifying shall be 40,000 per cubic centimeter, that of skimmed milk 10,000 per cubic centimeter, sugar-water solution 5,000 per cubic centimeter, lime water 1,000 per cubic centimeter, distilled water 1,000 per cubic centimeter, and whey 10,000 per cubic centimeter. Said whey shall be subjected to heat varying from 150 degrees to 140 degrees Fahrenheit for twenty minutes before being used in modifying.

The party of the first part agrees to appoint a representative of said Milk Commission to supervise the methods and technique of said party of the second part, as hereinbefore set forth, and said party of the first part shall hold said party of the second part in the modification of milk intended for infants to the same general standards of cleanliness and purity as are required of the producers of certified milk. Said party of



the second part agrees to pay said representative for said supervision, the sum of \$10.00 per month, said representative to make at least ten visits of inspection per month. Should evidence of contamination occur, which would require daily visits of inspection, said party of the second part shall pay said representative at the rate of \$1.00 per visit for all visits over the number of ten made in each month.

Said representative may, at any time, take samples of any of the ingredients entering into modified milk for special bacteriological examination, the same being intended as a control of the routine examinations as conducted by said party of the second part. Such special examinations shall not exceed one sample per month, and shall be made by the bacteriologist of the Milk Commission. Said party of the second part shall pay for said examinations at the rate of \$5.00 per examination.

Said party of the first part agrees to allow said party of the second part, during the life of this contract, to place on the caps and the shipping tags of receptacles containing milk modified in accordance with the terms of this contract, the words "The Milk Commission of Cleveland," or such words to the like effect, as the parties of the first and second part agree upon.

It is further mutually agreed that either party to this agreement may withdraw from and avoid the same after giving thirty days' notice in writing to the other party of its intention so to do.

IN WITNESS, WHEREOF, the parties hereto have hereunto set their hands the day and year first above written.

THE MILK COMMISSION OF CLEVELAND,

By.....

Its Secretary, thereunto lawfully authorized.

THE BELLE VERNON-MAPES DAIRY COMPANY,

By.....

Its ..... thereunto lawfully authorized.

### ACKNOWLEDGEMENTS

Cunningham's Textbook of Anatomy. By Arthur Robinson, M. D., F. R. C. S., Professor of Anatomy, University of Edinburgh. Fourth Edition. Enlarged, rewritten and illustrated by 1124 drawings. Price, cloth. \$6.50 net. Wm. Wood & Co., New York.

Diseases and Its Causes. By W. T. Councilman, A. M., M. D., LL.D., Professor of Pathology, Harvard University. No. 68 of the Home University Library. Price, 50 cents net. Henry Holt & Co., New York.

A Textbook of Histology. By Frederick R. Bailey, A. M., M. D. Fourth Revised Edition, profusely illustrated. Price, \$3.50 net. Wm. Wood & Co., New York.

Genito-Urinary Diseases and Syphilis. By Edgar G. Ballenger, M. D., Adjunct Clinical Professor of Genito-Urinary Diseases, Atlanta Medical College; Editor Journal-Record of Medicine; Urologist to Westley Memorial Hospital, etc., Atlanta, Ga., assisted by Omar F. Elder, M. D. The Wassermann Reaction by Edgar Paullin, M. D. Second edition revised. 527 pages with 109 illustrations and 5 colored plates. Price, \$5.00 net. E. W. Allen & Co., Atlanta, Georgia.

Medical Record Visiting List for 1914. Wm. Wood & Co., New York.

Eclectic Medical College Bulletin, Vol. IV, No. 3.

Reprint from Public Health Reports, No. 146, Poisons and Habit-Forming Drugs. By Martin I. Wilbert and Murray Galt Motter.

Monthly Bulletin of the Department of Health of the City of New York, Vol. III, No. 10, October, 1913.

Chronic Intestinal Stasis. By William Seaman Bainbridge, A. M., Sc. D., M. D., Professor of Surgery, New York Polyclinic Medical School and Hospital. Reprint.

**STATE BOARD EXAMINATIONS**  
**Held at Columbus, December 9-11, 1913**  
**PHYSIOLOGY**

1. What structures enter into the formation of joints? How are joints classified?
2. State distribution of the tenth nerve. What is its function?
3. What is mixed saliva? State the physiologic actions of saliva.
4. Describe relative functions of auricles and ventricles in the heart.
5. Describe the mechanic movement of the thorax.
6. What do you understand by secretion? Name some of the ways in which lymph is utilized in the body.
7. Describe functions of the cerebellum.
8. Describe the nutrition of the embryo.
9. Describe process of defecation.
10. Describe effect on metabolism of a continued fat and carbohydrate diet.

**DERMATOLOGY, SYPHILOLOGY AND DISEASES OF THE EYE,  
 EAR, NOSE AND THROAT**

1. Define eczema. State its possible causes.
2. How treat eczema?
3. Describe the primary symptoms of syphilis.
4. What would you do in case of hard chancre with enlarged inguinal glands?
5. Differentiate between varicella and smallpox.
6. Define myopia. How may it be corrected by lenses?
7. Describe iritis, mention its varieties, give causes and treatment.
8. Describe otitis media purulenta and the danger which may result.
9. Describe nasal polypi. Give causes and treatment.
10. Describe acute catarrhal laryngitis—give treatment.

**PRACTICE**

1. In what conditions do we find edema of the lower extremities: of the face, and ascites.
2. Give an outline of the management of a case of diabetes, with indications for "green vegetable days."
3. Describe infantile paralysis. Give diagnosis and treatment.
4. Differentiate between bronchial cardiac and renal asthma.
5. Give etiology of tubercular peritonitis and treatment.
6. Give treatment and prognosis of erysipelas.
7. Give etiology and treatment of cholera morbus.
8. Give etiology, diagnosis, prognosis and treatment of hemiplegia.
9. Give etiology and treatment of amoebic dysentery.
10. Give symptoms of (a) stone in kidney; (b) stone in bladder.

**MATERIA MEDICA AND THERAPEUTICS (REGULAR)**

1. Give some indications for the use of arsenic. In what forms is it used? Give dose of each.
2. Explain the physiologic action of ipecac. What preparations are used? Give dose of each.
3. State therapeutic use and doses of the principal salicylates.
4. Explain the physiologic action of the diuretics and indications for their use.
5. What are the principal potassium salts? Give use and dose of each.
6. When would you use opium or its alkaloids? Name important preparations and salts and give dose of each. What symptoms result from excessive use?



7. What drugs would you use to relieve abdominal dropsy? Explain action.

8. Define ether and the conditions that render it preferable as an anesthetic.

9. Name the principal preparations of belladonna and its official alkaloid, giving dose of each. Describe physiologic action.

10. Name three preparations of iron and give dose of each. Give therapeutic use and physiologic action.

### OBSTETRICS

1. Give the data upon which at term a diagnosis of L. O. A. position may be made without making a vaginal examination.

2. Define leucorrhea. Give causes and treatment.

3. Name some of the causes of abortion.

4. Name some of the most frequent causes of difficult labor.

5. Detail your method of making the first examination in a case of labor.

### ANATOMY

1. Name the divisions of the os innominatum.

2. Outline the heart on the anterior chest wall.

3. Name the visceral branches of the abdominal aorta.

4. Give the shape, location, dimensions and capacity of the stomach.

5. To what extent is the urinary bladder covered by peritoneum.

### DIAGNOSIS

1. Define friction sounds in the thorax and state what they signify.

2. What is dyspnea? In what affections is it present?

3. What conditions may be indicated by the presence of vomiting?

4. Mention physical signs of an acute diffuse peritonitis.

5. In what pathological conditions of the heart is accentuation of the first sound present?

6. In what lesions of the heart are combined murmurs in the cardiac area found?

7. Differentiate between alcoholic and apoplectic coma.

8. What pathological significance has the absence of the normal plantar reflex (Babinski phenomenon)?

9. In what pathological conditions is facial paralysis present?

10. What is nystagmus and in what affections is it present?

### PATHOLOGY

1. Describe the pathology of interstitial nephritis; compare it with that of parenchymatous nephritis.

2. What is the pathology of myxedema; gigantism.

3. Describe the process of acute abscess formation; chronic abscess formation.

4. Give indications for and mode of operation of an autogenous vaccine.

5. Give pathology of atrophic and hypertrophic cirrhosis of the liver with the explanation of the production of the respective ascites and jaundice usually resulting.

### SURGERY

1. Name five antiseptics and tell in what proportions each should be diluted for surgical purposes.

2. How would you expose the brachial artery for ligation in the middle of the arm?

3. Name the different varieties of fractures and state causes of delayed union.

4. At what point is paracentesis of the thorax performed?

5. Name the different methods of transfusion. Describe one.

## CHEMISTRY

1. Name three drugs that are frequently used for suicidal purposes. Give antidote for each.
2. Give the normal constituents of human milk and their approximate proportions.
3. Define acid, base, amido-acid.
4. What acids may develop in the stomach? What is the significance of each?
5. Give chemical test for diacetic acid in urine. Give clinical significance. What is acetone?

## MEDICAL NEWS

**National Conference on Race Betterment.**—The National Conference of Race Betterment to be held in Battle Creek, Michigan, January 8, 9, 10, 11, 12, 1914, has for its purpose of meeting the assembling of evidence as to the extent to which degenerative tendencies are actively at work in America, and to promote agencies for Race Betterment. Following we give the list of officers and program of meetings, showing the broad scope of the subject under discussion.

## OFFICERS

## President

Stephen Smith, A. M., M. D., LL. D. New York, N. Y.  
Vice President New York State Board of Charities

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Hon. Ben B. Lindsey, LL. D. Denver, Colorado  
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Right Hon. Sir Horace Plunkett, K. C. V. O., F. R. S. Dublin, Ireland  
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Hon. Robert L. Owen, A. M., LL. D. Washington, D. C.  
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## Executive Committee

Irving Fisher, Ph. D. New Haven, Conn.  
Professor of Political Economy, Yale University  
Rev. Newell Dwight Hillis, A. M., D. D., L. H. D. Brooklyn, N. Y.  
Pastor Plymouth Church  
J. H. Kellogg, M. D., LL. D. Battle Creek, Mich.  
Superintendent Battle Creek Sanitarium, Member Michigan State Board of Health  
Right Hon. Sir Horace Plunkett, K. C. V. O., F. R. S. Dublin, Ireland  
Ex-Minister of Agriculture for Ireland  
Hon. Jacob A. Riis New York, N. Y.  
The Jacob A. Riis Neighborhood Settlement



**Central Committee**

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- Victor C. Vaughan, M. D., LL. D. Ann Arbor, Mich.  
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President Michigan State Board of Health
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Good Housekeeping Magazine
- Hon. Jacob A. Riis New York, N. Y.  
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- S. Adolphus Knopf, M. D. New York, N. Y.  
Professor Phthisio-Therapy, Post Graduate Medical School and Hospital
- W. A. Evans, M. S., M. D., LL. D., D. P. H. Chicago, Ill.  
Medical Editor Chicago Tribune  
Professor of Hygiene, Northwestern University Medical School
- D. A. Sargent, A. M., M. D. Cambridge, Mass.  
Director Hemenway Gymnasium, Harvard University
- The Very Reverend Walter Taylor Sumner, D. D. Chicago, Ill.  
Dean of the Episcopal Cathedral of Saints Peter and Paul
- Hon. Charles E. Townsend Washington, D. C.  
United States Senator from Michigan
- Hon. Morris Sheppard, LL. B., LL. M. Washington, D. C.  
United States Senator from Texas
- Oscar H. Rogers, M. D. New York, N. Y.  
Medical Director New York Life Insurance Company
- Winfield S. Hall, M. D. Chicago, Ill.  
Professor of Physiology, Northwestern University Medical School
- R. L. Dixon, M. D. Lansing, Mich.  
Secretary Michigan State Board of Health
- Mrs. Melvil Dewey Lake Placid, N. Y.  
Honorary Chairman Institution Economics, American Home Economic Association
- Mrs. Ella Flagg Young, Ph. D., LL. D. Chicago, Ill.
- Rev. Caroline Bartlett Crane, A. M. Kalamazoo, Mich.
- R. Tait McKenzie, A. M., M. D. Philadelphia, Pa.  
Professor Physical Education, University of Pennsylvania
- John M. Coulter, A. M., Ph. D. Chicago, Ill.  
Professor Botany, University of Chicago, Ill.
- S. S. McClure, A. M., L. H. D. New York, N. Y.  
McClure's Magazine
- Ernest B. Hoag, A. M., M. D. California  
Leland Stanford University
- Frank E. Bruner, M. D., Ph. D. Chicago, Ill.  
Chicago Board of Education
- Henry Smith Williams, LL. D., M. D. New York, N. Y.  
Author

- Graham Taylor Chicago, Ill.  
 President Chicago School of Civics and Philanthropy  
 Hon. John W. Bailey, L. B. Battle Creek, Mich.  
 Mayor of Battle Creek  
 J. H. Kellogg, M. D., LL. D. Battle Creek, Mich.  
 Superintendent Battle Creek Sanitarium, Member Michigan State Board  
 of Health

### PRELIMINARY PROGRAM

THURSDAY, JANUARY 8, 1914—TWO SESSIONS

#### First Session—Sanitarium Chapel, 10:30 A. M.

- The Basic Principles of Race Betterment, Doctor Stephen Smith, Vice  
 President State Board of Charities, New York City.  
 Apparent Increase in Degenerative Diseases, Mr. E. E. Rittenhouse, Con-  
 servative Commissioner, Equitable Life Assurance Society, New York,  
 N. Y.  
 Race Progress as Measured by Changes in the Death-rate, Mr. Fred'k L.  
 Hoffman, Statistician Prudential Life Insurance Co., Newark, N. J.  
 The Causes of the Declining Birth-rate, Prof. J. McK. Cattell, Editor  
 Popular Science Monthly, Garrison-on-Hudson, N. Y.  
 Differential Fecundity, Prof. Walter F. Willcox, Cornell University,  
 Ithaca, N. Y.

#### Second Session—Sanitarium Gymnasium, 7:30 P. M.

- Crime, Prof. R. B. von Klein Smid, Superintendent Indiana Reformatory,  
 Jeffersonville, Ind.  
 Sterilization, Mr. H. H. Laughlin, Superintendent Eugenics Record Office,  
 Cold Spring Harbor, N. Y.  
 Practical Eugenics and the Venereal Diseases (Illustrated), Doctor  
 Aldred Scott Warthin, Professor of Pathology and Director Patho-  
 logical Laboratory, University of Michigan, Ann Arbor, Mich.  
 Education for Race Betterment, Especially Along Lines of Eugenics,  
 Doctor Winfield S. Hall, Professor of Physiology, Northwestern Uni-  
 versity, Chicago, Ill.

FRIDAY, JANUARY 9, 1914—TWO SESSIONS

#### First Session—Sanitarium Chapel, 10:30 A. M.

- Deterioration of Civilized Woman (Illustrated), Doctor Richard Root  
 Smith, Grand Rapids, Mich.  
 School Hygiene, Doctor Ernest Hoag, Leland Stanford University,  
 California.  
 Function of Individual, City, State and Nation in Bringing About Race  
 Betterment, Sir Horace Plunkett, Ex-Minister of Agriculture for Ire-  
 land, Dublin, Ireland.  
 The National Department of Health, Professor Irving Fisher, Yale Uni-  
 versity, New Haven, Conn.

2:30 P. M.—Entertainment by the Battle Creek Chamber of Com-  
 merce.

#### Second Session—Sanitarium Gymnasium, 7:30 P. M.

- Community Hygiene, Rev. Caroline Bartlett Crane, Kalamazoo, Mich.  
 Factory Degeneration, Rev. Newell Dwight Hillis, Pastor Plymouth  
 Church, Brooklyn, N. Y.  
 Industrial Welfare, Doctor Thomas Darlington, American Iron and Steel  
 Institute, New York.



The Cost of High Living as a Factor in Race Degeneracy and Limitation of Families, Doctor J. N. Hurty, Commissioner of Health, State of Indiana, Indianapolis, Ind.

Address, Hon. Woodbridge N. Ferris, Governor of Michigan, Lansing, Mich.

Social Surveys, Mr. Shelby M. Harrison, Director Department of Surveys and Exhibits, Russell Sage Foundation, New York, N. Y.

**SATURDAY, JANUARY 10, 1914—TWO SESSIONS**

**First Session—Sanitarium Chapel, 10:30 A. M.**

The Relation of Physical Education to Race Betterment, Doctor D. A. Sargent Director Hemenway Gymnasium, Harvard University, Cambridge, Mass.

Unbiological Habits, Dean Wm. W. Hastings, Normal School of Physical Education, Battle Creek, Mich.

The Importance of Frequent and Thorough Medical Examination of the Well, Victor C. Vaughan, M. D., LL. D., Pres.-Elect American Medical Association; President State Board of Health, Ann Arbor, Mich.

Some Suggestions for a More Rational Solution of the Tuberculosis Situation in the United States, Doctor S. Adolphus Knopf, Professor Phthisio-Therapy at the Post Graduate Medical School and Hospital of New York.

A New Race (Illustrated), Doctor J. H. Kellogg, Superintendent Battle Creek Sanitarium, Battle Creek, Mich.

**Second Session—Sanitarium Gymnasium, 7:30 P. M.**

Euthenics and Its Founder, Mrs. Melvil Dewey, Honorary Chairman, Institution Economics of the American Home Economics Association, Lake Placid, N. Y.

The Effect of Alcohol on Longevity (Illustrated), Mr. Arthur Hunter; General Chairman of the Central Bureau of the Medico-Actuarial Mortality Investigation Actuary New York Life Insurance Co.

Alcohol—What Shall We Do About It? Doctor Henry Smith Williams, Author, New York, N. Y.

Tobacco a Race Poison (Illustrated), Doctor Daniel Lichty, Rockford, Ill.

Effect of Philanthropy and Medicine upon Race Progress, Professor Leon J. Cole, University of Wisconsin, Madison, Wis.

The Function of the Dentist in Race Betterment, Doctor C. N. Johnson, Editor The Dental Review, Chicago, Ill.

**SUNDAY, JANUARY 11, 1914**

**Morning**

Race Betterment Sermons in the Churches, 10:30 A. M.

A Special Address at the Independent Congregational Church, Battle Creek, Mich., by Doctor Guilford H. Sumner, Secretary and Executive Officer Iowa State Board of Health, Des Moines, Iowa.

**Sunday Afternoon—Sanitarium Gymnasium, 3:30 P. M.**

An Experiment in the Use of Schools, Mrs. Ella Flagg Young, Chicago, Ill.

Public Repression of the Social Evil, Graham Taylor, President Chicago School of Civics and Philanthropy, Chicago, Ill.

**MONDAY, JANUARY 12, 1914—THREE SESSIONS**

**First Session—Sanitarium Chapel, 10:30 A. M.**

Segregation, Hastings H. Hart, LL. D., Director Department of Child Helping, Russel Sage Foundation, New York.

Relation of Eugenics and Euthenics to Race Betterment, Doctor Maynard M. Metcalf, Professor of Zoology, Oberlin College, Oberlin, Ohio.

The Importance to the State of Eugenic Investigation, Doctor C. B. Davenport, Director Carnegie Station for Experimental Evolution, Cold Spring Harbor, Long Island, New York.

The Psychological Limit of Eugenics, Herbert Adolphus Miller, Ph. D., Professor of Sociology, Olivet College, Olivet, Mich.

### **Second Session—Post Theatre, 3:00 P. M.**

Education for Parenthood, Mrs. Anna Steese Richardson, Director Better Babies Bureau, Woman's Home Companion, New York.

The Dependent Child, Doctor Gertrude E. Hall, Director Bureau of Analysis and Investigation, Department of State and Alien Poor State Board of Charities, Albany, N. Y.

Better Babies Contest Prizes, Mayor John W. Bailey, Battle Creek, Mich.  
Better Babies, Robbins Gilman, Head Worker University Settlement Society, New York City.

### **THIRD SESSION—MASS MEETING, POST THEATRE, 8:00 P. M.**

Infant Mortality and Marriage Selection (Illustrated), Professor Roswell Hill Johnson, University of Pittsburg, Pittsburg, Pa.

Marriage and Genetics, Doctor C. A. L. Read, Cincinnati, Ohio.

The Delinquent Child, Judge Ben B. Lindsey, Juvenile Court, Denver, Colo.

The Bad Boy, Hon. Jacob A. Riis, The Jacob A. Riis, Neighborhood Settlement, New York, N. Y.

The Health Certificate—A Safeguard Against Vicious Selection in Marriage, The Very Rev. Walter Taylor Sumner, Dean of the Episcopal Cathedral of Saints Peter and Paul, Chicago, Ill.

Physical and Mental Perfection Contest Prizes, Mayor John W. Bailey, Battle Creek, Mich.

### **SPECIAL MEETINGS**

Special meetings for men and special meetings for women will be held during the Conference. At these meetings questions relating to Eugenics and to special dangers which threaten the race will be discussed with greater freedom than is possible with a mixed audience. The meetings will be addressed by distinguished speakers of national reputation.

The National Child Welfare Exhibition Committee of New York City, and the American Association for Study and Prevention of Infant Mortality, of Baltimore, will send large exhibits to the Conference. The Michigan State Board of Health and the Michigan State Tuberculosis Society will also send exhibits. An extensive collection of health cartoons will be shown. There will be shown, also, model playgrounds, bedrooms, kitchens, groceries, etc.

In addition to the addresses listed on the program, there will be extended discussion, a full report of which, together with the papers, will appear in the Proceedings of the Conference.

These Proceedings may be obtained at the price of \$1.00 from the Secretary of the Conference as well as all information concerning Membership Cards for those wishing to attend Conference Meetings.

**United States Civil-Service Examination, Medical Assistant (Male), Jan. 12, 1914.**—The United States Civil Service Commission announces an open competitive examination for medical assistant, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Bureau of Chemistry, Department of Agriculture, Washington, D. C., at \$1,800 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.



The duties of this position will be to study the claims and representations made in conjunction with proprietary remedies, look up medical literature, assist in preparing cases, etc., under the Food and Drugs Act. A knowledge of French and German is desirable.

Competitors will not be assembled for examination, but will be rated on the following subjects, which will have the relative weights indicated.

Subjects	Weights
1. General education and medical training.....	35
2. Practical or professional experience and fitness.....	45
3. Publications or thesis.....	20
Total .....	100

Graduation from a medical school of recognized standing and at least three years' subsequent experience in the practice of medicine, or two years' subsequent experience in either pharmacological investigations or the actual examination of drug products with reference to the claims made therefor by manufacturers, are prerequisites for consideration for this position.

If a thesis is submitted under subject 3 it must present the results of original investigational work on the part of the applicant in some phase of medicine or pharmacology.

Statements as to training, experience, and fitness are accepted subject to verification.

Applicants must have reached their twenty-fifth but not their forty-fifth birthday on the date of the examination.

Under an act of Congress, applicants for this examination must have been actually domiciled in the State or Territory in which they reside for at least one year previous to the date of the examination.

This examination is open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for application Form 304, and special form, to the United States Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Post Office, Boston, Mass., Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Cal.; Customhouse, New York, N. Y., New Orleans, La., Honolulu, Hawaii; Old Customhouse, St. Louis, Mo.; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed and filed, in complete form, with the Commission at Washington prior to the hour of closing business on January 12, 1914. In applying for this examination the exact title as given at the head of this announcement should be used.

**Doctors and Dealers agree on Milk Standards.**—Border and breed and birth are being obliterated in the milk industry. There is a prospect that before long when a mother buys milk for her infant she will know that its producer has agreed with scientific authorities and with her own local health officers as to what is good milk and what is bad. Not only that, there is probability that if she has been living in Toronto and moves to Boston or San Francisco, she will find the same standards which she left behind her. In other words, scientific, administrative and commercial interests in the United States and Canada have agreed upon definite requirements in the production and sale of one of the most valuable and abused food products.

The standards agreed upon are those which have been worked out by the National Commission on Milk Standards, a group of seventeen experts brought together for the purpose by the New York Milk Com-

mittee. The circle of approval was completed when the International Milk Dealer's Association, consisting of fifty-five of the largest dealers in this country and Canada, subscribed to the requirements at a recent meeting in Chicago. A month before the requirements had been endorsed by the American Public Health Association.

Though this approval includes both administrative and commercial interests, the standards can become binding only as they are incorporated into local ordinances. They have been before the public only seven months, yet some fifteen large cities have already expressed an intention of adopting them. The New York Milk Committee will wage a nation-wide campaign to secure their general acceptance.

These standards recognize pasteurization as of primary importance in order that all milk shall be safe. Pasteurization is a process for checking fermentation and destroying the vitality of germs by exposure of the milk to a certain temperature. It has been discredited, the commission contends, because it has been abused by dealers who have poured dirty milk through the machines. The commission recommends that the minimum temperature be made 145 degrees Fahrenheit and the holding time thirty minutes.

Not all communities need the same milk standards. They vary with the location and especially with the size of towns. The members of the commission are from places of every size and as far apart as Massachusetts and Iowa. They have sought to put forth a set of standards which will apply generally to every part of the country. Besides pasteurization, these regulations refer to the labeling and dating of milk, bacterial counts, percentage of fats and solids, condition of cows, stables, utensils, bottling and stores.

The commission recommends that milk be divided into three main grades A, B, and C, for both large and small communities. But it believes that in small places where the milk used is produced near at hand there is no need for grades B and C. Larger communities probably find it necessary to permit the sale of Grades A and B, though even there Grade C can in time be eliminated.

Raw milk of Grade A, according to the commission's classification, shall come from cows free from disease as determined by tuberculin tests and by physical examinations by a qualified veterinarian. It shall be produced and handled by employees free from disease as determined by medical inspection by a qualified physician, under sanitary conditions such that the bacteria count shall not exceed 100,000 per cubic centimeter at the time of delivery to the consumer.

Pasteurized milk, Grade A, shall come from cows free from disease and shall be produced and handled under such conditions that the bacteria count at no time exceeds 200,000 per cubic centimeter. All milk of this class shall be pasteurized under official supervision, and the bacteria count after pasteurization shall not exceed 10,000 per cubic centimeter at the time of delivery to the consumer.

The bacteria count of Grade B milk shall at no time exceed 1,000,000 per cubic centimeter, nor 50,000 when delivered to the consumer. Grade C milk shall include all milk produced under conditions such that the bacteria count is in excess of 1,000,000 per cubic centimeter, but it shall be pasteurized or heated to a higher temperature and shall contain less than 50,000 bacteria per cubic centimeter when delivered to the customer. It is recommended that this milk be used for cooking or manufacturing purposes only.

With regard to chemical standards the commission declares that standard milk should contain not less than 8.5 per cent of milk solids not fat, and not less than 3.25 per cent of milk fat. Standard skimmed milk should contain not less than 8.75 per cent of milk solids. Standard cream should contain not less than 18 per cent of milk fat and should be free from all constituents foreign to normal milk.

Before these standards were worked out chaos existed in the control of milk. No successful attempt had been made to secure general agree-



ment as to just what is good milk and what bad. Each community was a law unto itself.

The endorsement of the International Milk Dealer's Association is expected to lead to the adoption of the standards by smaller producers and middleman throughout the two countries. The well-being of the industry demands that it have, to a peculiar degree, the confidence of the public. Moreover, proper milk standards contribute to the control of bovine tuberculosis and other cattle diseases against which the milk producer naturally desires to protect himself. Competition, it is expected, will therefore furnish a strong incentive to their adoption.

Meanwhile the commission, which is responsible for these standards, plans to draw up others affecting the manufacture and sale of butter, ice cream and other milk products. It is indeed pointed out that the method of regulating an industry which has been exemplified by the commission thus far may prove helpful in every branch of the pure food campaign. By first working out definite standards of excellence and then getting those standards adopted by the enforcers of law and by the industry itself, the machinery for protecting the public against impurity in food will have been very nearly perfected.—*The Survey*.

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**Physical Examination for Working Papers in New York.**—George A. Hall, Secretary, New York Child Labor Committee, reports the success of Amended labor law requiring physical examination for all working children in New York State.

In these days when we hear so much of the medical inspection of school children and of preventive and corrective health measures, it is something of a shock to many to realize that only half of these United States require health certificates from the children who apply for working papers. Among the states on the black list—which set no legal standard as to the physical fitness of children for work—are such industrially important states as Illinois, Pennsylvania, North Carolina and Virginia. Even in the states requiring health certificates the legislation is inadequate.

Until 1912, New York state had only the generally indefinite provision that children "not of a normal appearance" might be given a physical examination. The weakness in such a statute was brought to light in the testimony taken by the New York State Factory Investigating Commission during the winter of 1911. Accordingly the commission recommended "the amendment of the labor law to provide for a thorough physical examination of the child by a medical officer of the department or board of health before a certificate is issued, and for the transmission of duplicate records of the resulting of such physical examination to the Department of Labor." These recommendations were enacted into law without opposition, the new amendment taking effect October 1, 1912.

The kernel of this law's usefulness lies in the form for recording the results of physical examinations. John Williams, then commissioner of labor, drew up a printed blank designed to meet the difficult tests of a record form at once simple and comprehensive, which should call for only such equipment as would be as readily available in a village as in a city, and should require a minimum amount of work from the health officer.

When the law first went into operation, serious opposition was predicted. Health officers, however, report but few instances where objection has been raised by either the child or the parents. Undoubtedly, school medical inspections in our larger cities account in a large degree for this favorable attitude of many parents, while anxiety to have the children secure their working papers will cause others to go to almost any trouble or inconvenience. In one of our larger cities, possible objection on the ground of having girls examined by male physicians has been overcome in a commendable manner by assigning a woman nurse (usually in uniform) to assist the physician.

Through the Courtesy of the New State Department of Labor the writer has been permitted to examine and tabulate 1,821 physical ex-

amination cards which have come in from a variety of places, from the largest cities to some of the smallest villages.. The object of this study was to find out how the law is actually working, the defects in the blank or its use, and discover the physical characteristics of the children examined.

Discussing only a few of the items recorded, it is interesting to note that the percentage of children with normal or next to normal vision and hearing was high—75 per cent for the former and 87 per cent for the latter. The test for vision presumably represents corrected conditions in many instances as nothing was said in the directions about removing glasses.

The height or weight statistics show that a majority of the children had reached the development usually found in a 14-year-old child. 71½ per cent of boys and 66 per cent of girls were over 95 and 98 pounds weight respectively—Burk's figures for children 14½ years old. As to stature, our statistics show that 76 per cent of the boys and 81 per cent of the girls were 5 feet or over.

While the percentage of children showing heart abnormality or lung trouble is small, the discovery of even 25 children with such defects seems important. Only 53, or 3 per cent of the children are reported as mouth-breathers. This small number probably does not represent all such, as when under examination many children who are usually mouth breathers, unconsciously shut their mouths. Enlarged tonsils were found in 6 per cent and glands in the neck of 3 per cent of the total. The figures as to tonsils are probably also an understatement. Approximately 2 per cent of the children had goiters.

In spite of local regulations in most of our larger cities it is surprising to find that 9 per cent had never been vaccinated. A high degree of normality as to pulse rate was found, as well as a general absence of eye or skin diseases or joint abnormality.

Taken altogether, the first nine months' operation of this New York law seems to promise a marked improvement over former conditions. In the first place, practically all children granted certificates for factory work now receive a physical examination. Heretofore but a small percentage were given what might properly be called by such a name. Moreover, this examination was generally uniform in character and in method. Furthermore, the records are filed in a central place and are available for study. Previously records of examinations were rarely made and never filed together with one state authority.

But, after all, the main question is, did the law prevent a larger number of physically unfit children from going to work? It was believed that the new emphasis upon the physical condition of applicants for working papers would automatically react in favor of withholding more certificates from those physically weak. It is gratifying to find that the results seemed to bear out this forecast. In New York city alone, six months' operation of this law shows that 324 were refused for this reason as against 206 for the corresponding period the year before. Thus 118 more children were saved from factory work because physically unfit.

Such, briefly stated, are the main features of the New York law and its results. It is hoped that the next forward step to be recorded will be the working out of a legal definition of the degree of "physical incapacity" which shall bar the child from receiving the too eagerly coveted working paper. Meanwhile this law may rightly be called a good first step toward real protection of the health of children who go to work.



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## A STUDY OF REPEATED CESAREAN SECTION

By ASA B. DAVIS, M.D., Attending Surgeon, Lying-in-Hospital,  
New York

In considering the question of repeated Cesarean operations upon the same patient we are at once confronted with the problem as to whether it is our duty to render a woman incapable of again bearing a child after her first Cesarean section. For manifestly, if we follow the advice of those who advocate that every woman who is subjected to Cesarean section, shall be sterilized at the time of operation, the problem of repeated Cesarean section upon the same patient disappears. No labor is exempt from the possibility of dangerous complications, bringing with them more or less morbidity and mortality, yet the process of reproduction of the species continues. Every time that full anesthesia is induced we know that it is accompanied by some risk; still this does not deter us from the use of general anesthesia for operations, for the increasing skill and experience in the giving of anesthetics is progressively reducing that risk. Every time that the abdomen is opened, for whatever reason, there is danger through some fault in the technic, of the production of sepsis, of hemorrhage, thrombosis, the disturbance of kidney function, postoperative pneumonia, the development of abdominal adhesions and the other complications which the surgeon has learned to recognize and fear. And yet, through the refinement of technic and skill, there never has been a time when the percentage of these risks was so small, or when the surgeon approached operation with less hesitation and greater assurance, than at the present day. More operations are being performed than ever before and a greater variety of distressing conditions are relieved by these operations. We are probably well within the limit when we state that more Cesarean sections have been performed dur-

ing the past five years, with less morbidity and mortality than during the whole previous history of this operation. We believe that 8 per cent maternal mortality for all cases operated upon during the past five years is a high estimate, and that the maternal mortality in clean uncomplicated cases is not above 2 per cent. In this last class of cases, there is practically no fetal mortality, yet this is the operation which is claimed to be so dreadful in its results according to some who teach that it must not be allowed to occur more than once in the same patient. Repeatedly we see a patient delivered by this operation without labor pains, leaving the operating room with a pulse rate under 100, without laceration or distention of the birth canal, making an un-



1. Mother with family of children, all of whom were delivered by Cesarean operation.

interrupted recovery, and leaving the hospital in good condition within two weeks after the time of operation, carrying a healthy uninjured child with her. Take a similar case where it is at all possible to deliver by vagina and perform a high forceps operation or a version upon her and what do we see? Too often extensive laceration of the cervix, rupture of the vaginal tube, extensive tears of the perineum, greatly increased danger of septic infection, shock and hemorrhage, the uterine supports so injured, stretched and lacerated that they cease to fulfill their proper functions, unsatisfactory repairs after delivery, prolonged recovery, an injured or dead child, and an infant and maternal



mortality and morbidity far above that following Cesarean section. These patients invariably return for operative gynecological relief. The multiplicity of technical plans resorted to in these repair operations bespeak their unsatisfactory results in many instances. The abdomen is not infrequently opened to correct prolapse of the uterus in such cases, yet despite what the



2. Shows line of incision above umbilicus. Location of fundus of uterus shown by pencil mark.

patient has already suffered and is liable to suffer throughout the remainder of her life as the result of a difficult vaginal delivery, despite the record of an injured or dead child, it is the rarest thing for us to hear that such a patient should be sterilized.

In the late eighties and early nineties oöphorectomy was considered a cure-all for many of the ills of females and this operation was performed with great freedom, rendering many women sterile without arriving at the desired results. Many patients were left in a deplorable condition because of this operation. Surgeons were then apparently not alive to the far reaching harm that they were doing. The pendulum has swung in the other direction and the present tendency is to save every organ or part of an organ for the patient wherever possible and restore it to the place and function which nature designed for it, with the least possible interference consistent with the correction of the existing pathological condition. It never has been the teaching or the practice in the Lying-in-Hospital to sterilize patients after Cesarean section except for unusual conditions. The wishes of husband or wife or both together that this mutilation should be done are, to our minds, not sufficient reason why the surgeon should conform to their desires in this matter any more readily than he would induce abortion for like reasons. He may, in a few cases, recognize pathological conditions which would so evidently place the woman in great jeopardy in the event of subsequent pregnancy and labor, that he is justified in rendering future pregnancy impossible. But the surgeon who sterilizes *every* patient after Cesarean section takes upon himself a greater burden of responsibility than is necessary or than most of us should be willing to assume. Even those patients who have been successful in securing sterilization may undergo a change of heart. The child or children which they already have may die, and after it is too late, they would gladly undertake any risk in order to have another child. Such cases are now on record.

This is a broad subject, the final word upon which has not yet been spoken. Until the ideas of different surgeons come nearer to crystalization concerning it, we must continue to judge and act independently in each individual case. At best, Cesarean section is a serious operation, not to be decided upon lightly. But the obstacles and conditions which this operation is designed to overcome are serious and dangerous and Cesarean section is meeting these difficulties and dangers in an increasingly more satisfactory manner.

The arguments which can be brought in favor of sterilization at the time of Cesarean section are the possibility of subsequent



pregnancy and the danger of rupture of the uterus through the Cesarean cicatrix at the time of labor, or the necessity for again performing Cesarean section with the dangers which may complicate that operation. We can conceive of but two conditions which increase the danger of subsequent pregnancy and labor, possibly terminated by Cesarean section, over that of the first Cesarean operation. They are the danger of rupture through the uterine scar under the stress of uterine contractions and the possibility of the formation of extensive intra-abdominal adhesions with the evils which are known to follow. We cannot escape the fact that we are never able to say how well the uterine wound has united or how much strain the scar will endure in the event of labor. If we can have the patient under observation during pregnancy early enough, so that we know within reasonable limits its duration, and repeat Cesarean section just before term in cases in which conditions are such that this operation is again indicated, such as in cases of contracted pelvis, unduly large child, etc., but before uterine contractions test the strength of the uterine scar, this danger ceases to exist. We would call attention to the fact that in so far as this question is concerned, the most favorable time to perform Cesarean section is shortly before term. The patient does not suffer the exhaustion incident to labor pains, the cervix relaxes and opens sufficiently after operation to allow for drainage. This is the most favorable time for the child if we are reasonably sure that it is mature, because it is then delivered before it is subjected to any compression, and also we are able to elect a convenient time for the operation, though this is of secondary importance. Lacking this assurance it is better to wait until the onset of labor and then operate, and thus avoid delivering a premature child which will soon die or one which is with great difficulty made to survive. In some cases of contracted pelvis or spinal deformity the fetus is held up in the abdomen in such a way that it is made to appear larger and nearer term than it really is. In two hundred and five Cesarean operations, with death of twenty mothers (maternal mortality 9.7 per cent), the writer has been misled once in this way, and delivered a premature child which lived but a few hours. The greatest danger occurs to those patients who neglect to report during pregnancy and who continue in labor sometimes for many hours before seeking proper surgical aid. In the writer's experience in thirty-three Cesarean operations,

subsequent to the first Cesarean section, three cases of rupture through the uterine scar have occurred with fatal results to one mother and her child in her second labor. In a third case the scar was thick and strong but the uterus ruptured through the thinned-out lower segment.

Concerning the formation of extensive intra-abdominal adhesions, it is rare for them to assume dangerous proportions, although they do occasionally occur. To avoid as much as possible these two dangers, rupture through the uterine scar, and the formation of adhesions, every precaution should be taken to avoid septic infection. The greatest care should be observed in the closure of the uterine wound in every case of Cesarean operation, placing the sutures in such a way that the cut surfaces of the uterine wall are brought into and held in accurate apposition without undue tension throughout their entire depth by absorbable suture material, to insure strong primary union. The peritoneum should also be sutured over the uterine wound, leaving no raw surface where adhesions might form. We do not attempt to spread the omentum over the uterine wound. We believe that adhesions are still further avoided by making the abdominal opening small in the midline above the umbilicus and operating without delivering the uterus from the peritoneal cavity. By this method the possibility of the escape of the omentum and intestine from the abdomen and the possibility of intra-abdominal manipulations are reduced, and also when the uterus is closed, it assumes a position in the lower part of the abdomen beyond the possibility of adhesions occurring between the abdominal and the uterine wound.

We cannot say that adhesions will never follow this method. They sometimes occur, but we never have found them extensive and they usually have followed moderate septic infection, in cases in which some of the uterine sutures have failed to hold or in which raw surfaces have been left. Nor can we say that adhesions will form in all cases in which the abdomen has been opened by a long incision lower down, for we have had occasion to perform Cesarean section in cases where this incision has already been previously employed and we have sometimes found the uterus as free from adhesions as though no Cesarean section had been done. The writer is personally, however, in favor of the small midline abdominal opening above the umbilicus. Every attempt should be made to perform this operation with the



least possible interference and manipulation so that the patient may quickly assume the conditions which follow normal delivery with the uterus involuting progressively and finally taking its position in the pelvis with its mobility unrestricted by adhesions.

Although contracted pelvis is the main indication for this operation in about 80 per cent of the cases, its scope has now been extended so that it is sometimes employed in cases in which the pelvic capacity is ample, such as some cases of eclampsia, placenta previa, etc. The dictum, "once a Cesarean, always a Cesarean," is no longer true. Within the past six months, three women have passed through unassisted normal delivery at term in our service, upon whom the writer had previously performed Cesarean section. Eclampsia was the indication in two of the cases. The third case gave a history of a still-birth and forceps delivery and very large children; this woman had a contracted pelvis, male type. She was anxious for a living child. Impacted fibroid in the pelvis was the indication in a fourth case. A history of these cases is as follows:

*Case I.* C. N. 19029. Mrs. I. J. Admitted February 3d, 1911. Age 23 years, para I. Seven and a half months pregnant, not in labor, repeated convulsions. History of headache for several weeks and later edema of feet and face. Had been under treatment by her family physician. Had a convulsion at 6 a. m. and had two others before admission at 9:30 a. m. Stuporous condition at intervals. Fundus midway between umbilicus and ensiform. Fetus-Vertex L. O. A. with heart 140 to 160. Cervix elongated, not dilated. Urine: small quantity, large amount of albumin, many hyaline and granular casts. Immediate Cesarean section. Female child weighing 1,750 grams delivered. Uneventful recovery from operation. Gradual recovery from symptoms of toxemia. Urine became normal except that it still contained a faint trace of albumin, when discharged on the twenty-seventh day post-partum. She nursed her child which was gaining, weighing 1,975 grams when discharged. The child has continued to live.

This patient was delivered a second time, November 25, 1913, a full term by normal unassisted labor and discharged on the fourteenth day post-partum with a healthy living child. She was under observation throughout pregnancy and the repeated symptoms of toxemia necessitated her coming to the hospital three times and remaining for periods of ten days to two weeks

for treatment. Rest in bed, milk diet, hot baths, rectal saline irrigation and nitro-glycerine were given. The urine and blood pressure showed very little noteworthy change from normal. Headache, turgid, florid appearance of the skin, slight edema. Tingling in the hands and forearms increasing to decided pain, worse at night, was the most distressing symptom.

*Case II.* C. N. 22643. Mrs. R. H. Admitted July 26, 1912. Age 22 years, para I. Seven months pregnant; vertex L. O. A. Constant coma; no history of convulsions. Scant, dark amber urine boiled solid, many hyaline and granular casts. Immediate Cesarean section; small child delivered. Unsuccessful efforts to establish respiration for one hour when heart stopped. Primary union in wound. Temperature 105.4; pulse 148, first day post-partum. Continued in neighborhood of 104 for twenty-two days when it reached normal and continued thus. Coma cleared up in a few days. Urine showed trace of albumin and hyaline and granular casts, when discharged on the fortieth day post-partum. During her second pregnancy, her urine continued to show traces of albumin and hyaline and granular casts. Her general health continued fairly good. She was delivered in this hospital August 20, 1913, of a full term child by normal unassisted labor and discharged twelve days later with a child doing well.

C. N. 3093. Admitted September 15, 1903. Mrs. M. A. Age 33 years para III. First child delivered by midwife; long labor; still-birth. Second child by this hospital; high forceps, lived one week. Application made July 27, 1903. Intensely anxious for a living child. Male type pelvis, thick bones, narrow outlet; patient obese. Pendulous abdomen, anteflexed uterus. Fundus 13 cm. below level of symphysis. Fetus large. In view of former history, and pelvis, unable to promise living child except by Cesarean section. Labor began and Cesarean section was performed September 22, 1903, by the long low incision and delivery of the uterus. Living child which weighed 4,100 grams was delivered. Recovery was uneventful. Two and a half years later, (C. N. 7280), March 26, 1906, she was again delivered after two and a half hours of moderate pains of a 3,600 gram baby with smaller head measurements by spontaneous delivery. Again (C. N. 12071), this same patient on March 9, 1908, was delivered after easy labor of a 3,450 gram child. During the past summer (the history is not at hand), she was the third time



delivered, in the writer's service, by easy labor of a medium sized child. There were very small herniae at short intervals in the old Cesarean scar. This patient now has four healthy children.

*Case IV.* (C. N. 11823). Mrs. M. M. Admitted February 5, 1908. Age 37 years, para IX. Easy deliveries. Seven children living. Pains and watery discharge for three days. Vigorous uterine contractions for nine hours previous to admission. Unaware of any tumor. Pelvis large. Lower end of fibroid filled the cavity of pelvis and extended to fundus on left side. Full term fetus with vertex above brim unable to displace tumor. Cesarean section performed and a child weighing 3,850 grams was delivered by the midline high incision. Uneventful recovery for mother and child. Discharged on the nineteenth day post-partum. Three years later this patient was admitted six weeks from full term pregnancy, bleeding moderately and having uterine contractions. She was put to bed where she remained for one month. The bleeding soon stopped and uterine contractions were stopped by morphine and rest. During her rest in bed the tumor became smaller, probably from reduction of edema and congestion in it and lifted out of the pelvis. She was allowed out of bed a part of the time for a week at the end of which she had a precipitate delivery.

Two other cases who were delivered by us by Cesarean section have been reported to us verbally as having been successfully delivered by forceps in their own homes by outside physicians.

The writer has performed repeated Cesarean operations in thirty-three cases. Twenty-two the second time, eight the third time and in one case each, the third, fourth, fifth and sixth time. The first two Cesarean operations in the last mentioned case were performed by other surgeons.

*Six Cesarean sections, one craniotomy.* One induced abortion at the sixth week of pregnancy by a private physician.

Mrs. R. O. Austrian. Age 21 years, para I. Short stature, irregularly contracted pelvis; high double promontory. True conjugate 9.5 cm.

(C. N. 20137.) August 29, 1900, delivered in a tenement. Long labor; dead child. Vertex not engaged. Craniotomy. Very difficult. Shoulders inaccessible after head was crushed, held up by high promontory. Fairly easy recovery of mother. (Delivered by writer.)

(C. N. 23409.) November 10, 1901. First Cesarean section. First child delivered in present hospital building. Long low median incision. Uterus delivered and opened by the transverse fundal incision. Ovum delivered intact from uterus before rupture of membranes. Mother and child made good recovery. (By Doctor Churchill Carwalt.)

(C. N. 3206.) October 25, 1903. Second Cesarean section, in the hospital. Abdomen opened through old scar. Uterus delivered. Opened by incision, mid anterior surface. Uterine scar normal; few adhesions. Good recovery of mother and child. Child said to have died of "brain fever" at 21 months. (By Doctor H. M. Taylor.)

(C. N. 5747). June 7, 1905. Third Cesarean section; in the hospital. Midline incision 10 cm. long above umbilicus. Uterus not delivered. Uterine scar normal; many adhesions. Mother and child made good recovery. Discharged on the eighteenth day post-partum. (Delivered by writer.)

December, 1906, patient reports as the date of induced abortion at six weeks by a private physician.

(C. N. 11906.) February 16, 1908. Fourth Cesarean section, in the hospital. Old scar above the umbilicus; dissected out; abdomen opened through this point. Uterus not delivered. Scar not mentioned; many adhesions. Good recovery of mother and child. Discharged on the twentieth day post-partum. (Delivered by writer.)

(C. N. 16500.) October 31, 1909. Fifth Cesarean section in the hospital. Abdomen opened through old scar, which was not dissected out this time, in midline above umbilicus. Uterus not delivered. Good recovery of mother and child. Discharged on the sixteenth day post-partum. (Delivered by writer.) Increased omental and mesenteric adhesions danger of constriction of intestine feared. Attempted to sterilize. Left tube closed by ligatures. Section taken out. Peritoneum sutured over end. Unable to reach right tube because of adhesions.

(C. N. 24542.) April 17th, 1913. Sixth Cesarean section in the hospital. Through old scar above umbilicus. Uterus adherent to anterior abdominal wall under scar. Child delivered without opening peritoneal cavity. Good recovery of mother and child. (Delivered by writer.)

In this series of thirty-three repeated Cesarean operations, contracted pelvis in some form was the indication for the opera-



tion in each case. The records show that the uterine scar was strong and firm in twenty-three cases. In four cases it could not be found. In three cases it was thinned in places and of irregular thickness. There was partial rupture of the scar in two cases. In one of these two the rupture extended downward to the left lacerating through the thinned out lower uterine segment. This patient was sterilized. Both mothers and their infants made good recovery. The third case was brought to the hospital in a condition of severe shock, with child, placenta and much blood free in the abdominal cavity and the uterus ruptured throughout the entire length of the former Cesarean wound. The child was dead and the mother died in twelve hours after a quick operation repairing the rupture.

Attention is called to the fact that all three of these patients had been in active labor for many hours before coming to the hospital. Early Cesarean section at or just before the onset of labor would have prevented these uterine ruptures.

#### Rupture of Uterus

(C. N. 6885.) Mrs. Becky A., age twenty-three, para I. High forceps. Baby weighed 2,600 grams and died two months later.

(C. N. 8918.) Mrs. Becky A. December 23, 1907. Transferred from O. P. D. for Cesarean delivery. Membranes intact. Cervix fully dilated. Bloody urine. Bleeding from cervix. No placenta made out by vaginal examination.

At operation the placenta was directly under the uterine incision. The convalescence was protracted. The temperature the second day was 103. Pulse 140. Temperature was high till the sixth day. Intra-uterine douches were employed in the treatment of her condition. On the twenty-sixth day post-partum there was still profuse purulent discharge from the uterus. Cystitis and tardy involution complicated convalescence. Gonococci were found in the baby's eyes on the twelfth day. It weighed 3,000 grams and survived.

(C. N. 11607.) Mrs. Becky A., age 25 years, para III, was admitted to the Hospital January 9, 1908. Labor began at 1 a. m., January 9th. She was operated on at 3 p. m. the same day, the pains being mild, the cervix two fingers dilated and the membranes intact. Operation. The abdominal scar from the former Cesarean was of the keloid type. There were omental adhesions to the anterior abdominal wall and to the uterus on

the right of the median line above and below the umbilicus. The intestines protruding were packed back with gauze pads. Because of the low position of the uterus and the adhesions it was necessary to enlarge the abdominal opening 12 cm. downward and to the left of the umbilicus. At this stage old black tenacious clots were found between the left broad ligament and the abdominal wall and were removed. A partial rupture of the uterus was discovered at the lower end of the old uterine cicatrix, which had thinned out and spread until it was 2 cm. wide. Five cm. above the bladder reflection of the peritoneum in the median line and in the old cicatrix, was a rent 3 cm. long through which intact membranes the size of an English walnut protruded. This was probably the source of the old bleeding and there was no fresh hemorrhage. The uterus was opened with scissors and by tearing (as the patient was believed to be dying and was taking the anesthetic badly) and the child delivered. There was little active bleeding and only some slight oozing of black blood. The lower end of the uterine wound looked as though the sutures had given way long ago in the first repair and the uterine peritoneal surface healed over, the rupture extended downward and to the left about 6 cm. in the thinned out lower segment. These surfaces were freshened before introducing the sutures and the tubes were exsected to prevent further conception. The convalescence was fairly smooth. The baby weighed 2,150 grams, and lived and both patients left the Hospital on the twentieth day.

(C. N. 12583.) Mrs. Sarah M. May 15, 1908. Para VII, age 33 years. One living child with instruments. Two spontaneous deliveries, children living. Three still-births with instrumental delivery. Flattened pelvis. Face presentation, R. M. P. In labor for twenty-four hours before admission. Membranes ruptured. Cervix two fingers dilated. Delivered by Cesarean section. Baby weighed 3,500 grams and lived. Temperature 102 on second day. Pulse 120. Pulse and temperature normal after fourth day. Discharged fifteenth day post-partum.

(C. N. 17780.) Mrs. Sarah M. Same patient. June 1, 1910. Age 35 years, para VIII. Second Cesarean section. Prolonged labor. Floating head, Vertex. Patient admitted in labor about 9 p. m., having contractions about every fifteen minutes. Stated that she had had pains all day, with pain in lower abdomen for two weeks. On May 31st the pain was so severe that this hospital sent its ambulance for her about noon. She refused at that time to come in. Upon admission, cervix was less than two



fingers dilated. Membranes intact and protruding and head wholly above brim. Could not be engaged by suprapubic pressure. Fetal heart was not heard. Patient's abdomen was markedly distended and she complained of extreme tenderness upon pressure over the fundus. Face was flushed, lips dry and brown. Pulse ranged from 100 to 110 and of good quality. Temperature 100.8. No douche and one vaginal examination.

Operation. Abdomen opened through old cicatrix. Upon entering the abdominal cavity, clots in a very thin layer were found over the upper anterior surface of the uterus but there was no fresh bleeding. There were no adhesions of any kind. Uterus filled abdomen tightly. On examination a rupture about 4 cm. long was found in the lower portion of the old Cesarean scar, and through this opening placental tissue protruded, about 1 cm. above the surface of the uterus. In inserting two fingers into this opening, and in attempting to lift the uterus up, the cicatrix in the uterine wall readily separated throughout its entire length. The placenta was directly under the opening. After removal of the child, the uterus contracted well and tended to slip away into the lower abdomen. There was considerable hemorrhage. The uterine wall was very thick. The edges of the uterine wound were freely freshened with scissors and some "cicatricial" (?) tissue cut away. (Unfortunately no microscopical examination of these clippings was made.) The uterine tear was limited to the old uterine wound. The uterus was then closed in the usual way.

Patient upon leaving the hospital had the uterus adherent to the anterior abdominal wall just below the umbilicus. Uterus as a whole had involuted well and the woman underwent a fairly smooth convalescence. The baby lived, weighing 3,530 grams at birth.

(C. N. 21241.) Mrs. P. B. Age ..... Para I. Admitted January 1, 1912, at full term. Abdominal Cesarean section January 2, 1912. Much deformed and poorly nourished kyphotic dwarf contracted pelvis. Small child vertex R. O. A. Unable to force head to enter pelvis inlet. Uneventful recovery, discharge from hospital fourteenth day, post-partum. The child died on the third day, from no apparent cause except feebleness and lack of vitality.

(C. N. 24797.) Mrs. P. B. Same patient as above, was admitted to the Hospital May 20, 1913, at 9:30 p. m., in a condition of well marked shock. She had been in active labor at

full term since 10:30 a. m. of this same day. Upon opening the abdomen a dead child, the placenta and much blood were found free in the abdominal cavity and the cicatrix in the uterus from the first Cesarean operation was torn open through its entire extent. There was little active hemorrhage. The abdomen was cleared of child, placenta and clots. The edges of the uterine wound were freshened and the uterus and abdomen closed in the usual way. The patient died in twelve hours. This patient had been under careful and repeated observation and advice throughout this pregnancy, and yet in the end she disregarded our repeated warning that she should enter the hospital shortly before term, or failing in that, at the first appearance of labor pains.

The Lying-in-Hospital records show that four hundred and ninety-five Cesarean sections have been performed in its service since 1893. The first twelve of these operations were done in the tenements.

The death of fifty mothers represents the total maternal mortality following this operation. Repeated Cesarean section has been done sixty-nine times. Rupture through the Cesarean scar in subsequent labor has been found in six cases.

42 East 35th Street, New York City.

**Good Hunting.**—Quack doctors are the most vulnerable of big game. How astonishingly tender their commercial susceptibilities are has been shown by the *Chicago Tribune*. One week of exposure through the *Tribune's* columns practically ruined every venereal disease quack in the city. Some shut up shop and disappeared. Others sat idle in empty offices, forlorn spiders at the center of flyless webs. Never before was so powerful and profitable an industry brought to such instant wreckage. What destroyed this pirate trade was not alone the direct result of the exposures, definite and potent though that was. The lethal blow was the eviction of all this class of advertising from the daily press. Within four days of the *Tribune's* declaration of war every morning and afternoon paper in the city, whether printed in English or in some other language (and there is a great number of Chicago newspapers published in foreign tongues), which was carrying this class of copy had been shamed or alarmed into throwing it out. The evening paper of William R. Hearst, who a year ago bragged mightily of having foregone his alliance with quacks, was forced to exclude advertising which represents in the neighborhood of \$70,000 a year blood money to that apostle of journalistic purity. Finally, the militant *Tribune* gives notice of its intention to stir up prosecutions under the law; or, if the present law be inadequate, to agitate for the enactment of a stronger statute under which the malefactors may be brought to book. In view of this newspaper's established reputation for carrying out whatever it undertakes to the fullest conclusion, it is a fairly safe prophecy that in Chicago the venereal quackery game is up. Out in Seattle the *Sun*, a lusty infant of far western journalism, performed a like service for its city; and some years ago the *Cleveland Press* made a valiant but only partly successful effort in that vicinity. But the Chicago campaign has been by far the broadest and most significant. On its letterhead the *Tribune* terms itself "The World's Greatest Newspaper." To our mind its antiquack victory goes far toward making the boast good.—*Collier's*.



## TREATMENT OF CARCINOMA OF THE FEMALE GENITALS WITH MESOTHORIUM

By J. J. THOMAS, M. D., Cleveland

It was my privilege during the past summer to observe in Professor Bumm's clinic in Berlin the method of treating carcinoma of the female genitals by means of the radioactive mesothorium. On account of the intense interest aroused by the results of the treatment, especially among German surgeons and because of its practical importance in the fight against one of the most terrible diseases which afflicts mankind, it may be worth while to consider briefly the views and experiences of German clinicians. The method aroused by far the most interest at the Gynecological Congress at Halle last spring and Wertheim himself is said to have made the statement in the discussion that the mesothorium treatment would take the place of the radical operation devised by himself.

For reasons which will appear sufficiently obvious, I will state that I have had no personal experiences, other than observing the treatment as applied to two patients at the Berlin Frauenklinik by one of Bumm's assistants.

According to O. Hahn (chem. Zts. B 35,845), mesothorium is the first decomposition product of Thorium and the substance which originates radio-thorium. It is complex, consisting of two mesothorium substances (mesoth. 1, which gives no rays, and mesoth. 2, which gives beta and gamma rays). Mesothorium 1 changes over into mesoth. 2 (in 1 day's time) and then the mesothorium acts as a homogeneous radio-active substance.

Commercial mesothorium contains radium, usually about 25 per cent. Mesothorium gradually changes into radio-thorium.

In an article by Bumm and Voigts, *Münchener Medicinische Wochenschrift*, Aug. 5, 1913, on the technique of carcinoma irradiation, the statement is made that by the old methods of treatment by soft ray Roentgen tube and small quantities of radium for a short time, only half results were obtained, but that by the more recent use of hard ray tubes and ten to twenty fold doses of radio-active substances, we are in position to cure carcinomas of all kinds, even the rapidly growing medullary variety, provided they can be well exposed to the rays. However, the question is not yet settled, as to whether distant metastatic growths are effected.

The authors report a year's experience both with Roentgen Rays and Mesothorium, either separate or combined and call attention to the fact that carcinomas of the female genital tract offer especially favorable objects for the study of the action of irradiation because they show the most diverse forms of cancer growths and among them the most malignant, and on the other hand are relatively quite accessible and furnish an easy and harmless control through the eye and through excision of specimens for microscopic examination.

In regard to the action upon the primary carcinoma focus in the female genitals it is important for good results that the affected parts be well exposed.

The speculum must be skillfully used and the best method for each case must be determined so that the rays accurately reach every affected part. As this holds good for other organs, the authors argue that the treatment should be in the hands of those specially skilled in each department of surgery, and can, therefore, not be well carried out in a general radiologic institution. When necessary they do not hesitate to dilate the parts, even by incision. This has been found necessary at times in the funnel shaped contractions in cervical and vaginal carcinoma of elderly women. It is an axiom that the more accessible the diseased parts are, the more rapid are the results, and the more easy it is to protect the healthy parts from the undesired action of the rays.

Although radium and mesothorium have the advantage that their rays may be applied for a long time and in the depths of the mucous membrane canals without discomfort to the patients and without expenditure of labor to the operator, and in regions inaccessible to X-rays, still the very high cost is of decided disadvantage and this factor often renders their use impossible. It is fortunate on this account, that we have in the Roentgen rays a remedy accessible to every one, which in its action is closely allied to the radio-active substances and is able, according to the authors to bring about, in carcinomas within reach, not only shrinking but actual healing.

They mention two cases of urethral carcinoma in which complete cure was effected by the X-rays alone. In one, in which the carcinoma had extended to the neck of the bladder, the disappearance of the growth was so complete under the application of 700 X that there was no evidence of its existence either



to sight or touch. In the other case complete disappearance of the carcinoma was brought about, as shown by repeated deep excisions, only the burn eschar remaining.

In one case of carcinoma of the vaginal portion of the cervix in an old woman cure was effected by 1927 X administered in 72 days.

Several other cases with equally good results are mentioned. The reaction of the carcinoma tissue to the X-rays is weaker and slower than to the radio-active substances, which come into much closer contact with the new growth and which act for a much longer time on the adjoining tissues, but practically the same retrogressive changes take place.

First occurs a kind of inflammatory irritation with redness, swelling, sensitiveness and increased serous discharge, which may continue one or two weeks and then passes over into sclerotic shrinking and scar formation, accompanied with disappearance of the swelling, cleaning of the grey surface and drying up of the secretion.

The X-rays are especially adopted for the treatment of carcinomas of this region because the vagina can stand disproportionately larger doses than the skin and other mucous membranes.

With the aid of a 1 to 2 m. m. thick aluminum filter, daily doses of 20-30 X may be applied week after week. Care must be exercised to guard against burns of the outer genitalia, as the great pain produced in the pus covered and slow healing parts renders further treatment of deep seated diseased areas difficult.

In order to administer such large doses of X-rays in the treatment of deep seated carcinomas of women a comfortable position of the patient is essential. For this purpose the authors devised leg-holders which support the upper and lower legs so that even weak and sensitive women are able to lie comfortably for an hour in the lithotomy position with the lead glass speculum in the vagina. Specially devised tubes are used to deliver the rays into the vagina and by employing a powerful machine four tubes are activated at once, so that 30 patients are treated in the course of 24 hours. The shrinking and sclerosis of the parts which regularly occur after several weeks use of the X-rays are annoying factors. They transform the vaginal vault into a funnel-shaped scar, which cannot be unfolded. This must be combated by tampons. Finally there remains a white, fibrin like

deposit of necrotic tissue above the inflamed mucous membrane, which must be controlled by drying applications.

In beginning the use of radium and mesothorium in this field, it was necessary, owing to the paucity of literature on the subject, to determine the best plan for dosage and the most practical method of filtering the rays. It is easily understood, according to the authors, that, in widespread carcinoma foci, doses of a few milligrams have no action. The affect is nil, because the growth energy of the cells is greater than their injury by the rays. Two questions were therefore to be settled; what is the active minimum dosage, and how far can the dose of radioactive substances and the duration of its action on the carcinoma tissue be increased to advantage? By experiments it was established that while large doses, of 400 mg and over, with strong filtration through 2 m. m. of lead could be born by some patients without reaction, in others, for unknown reasons, with an application of only 10 hours, severe local and general symptoms appeared after a few days. There occurred, aside from the expected and desired reaction on the diseased tissue itself, irritation in the neighborhood in the form of diffuse pain in the small of the back and in the trunk, and very often patients complained of distressing tenesmus in the abdomen, which was followed by evacuations of mucous and blood. Fever, weakness, severe anemia and loss of appetite resulted in almost all of the patients treated with large doses. In one case, after 9050 m. g. hours in two days with two m. m. lead filter, the temperature rose to 40C. and remained there for five days with formation of a bloody serous exudate in the pelvic connective tissue. By the use of unfiltered rays (1/10 m. m. silver) the authors had previously seen the formation of a similar exudate, likewise accompanied by high fever, which resulted in abscess formation with sterile pus.

For these reasons they returned to the medium doses of 150-300 m. g. and allowed these to act directly on the carcinoma tissue for 10-12 hours with 1 to 2 day intervals. Time must be allowed for the tissue to react.

In order to investigate the best method of filtration they used part of the mesothorium supply in the original package of 2/10 m. m. silver foil; part in a filter of 1 to 3 m. m. of lead. The 72 m. g. of radium bromide in possession of the clinic was contained in a platinum tube, through which no Beta rays, but nearly all Gamma rays pass.



The investigations showed that the thin silver foil, through which Beta rays freely pass, affords almost no protection and if brought into contact with healthy tissue, soon causes burning and by continued use, deep seated necrosis.

On the other hand, the action of even large doses of mesothorium, if the combined rays are reduced by the lead filter to a small per cent of hard rays, is quite slow and incomplete. Two cases are cited, each with equally advanced and accessible flat-celled carcinoma of the cervix uteri, one of which was treated with 150 m. g. in a thin silver capsule, the other with 150 m. g. in 2 m. m. thick lead filter during 19 days. After 20000 m. g. hours in each case, microscopical examination showed in the first, disappearance of the disease for a depth of 2 c. m. and complete disintegration and resorption in the inconsiderable remainder; in the other case, treated with the gamma rays alone, wider areas were shown to be either slightly or not at all affected. Under more prolonged action of the rays, however, these differences disappear.

As a result of these tests the treatment in most cases is begun with the energetic Beta rays and continued for 8-10 days. With advanced cleansing and scarformation these rays are then cut out with gradually increasing thicknesses of lead filter so that with the large doses of 2-300 m. g. only the 2 m. m. lead filter is used.

It is necessary to protect the sound tissue against the action of the Beta rays and this is done by ingenious arrangement of lead caps and flexible lead plates, so as to confine the action of the rays to the diseased tissue. To guard against secondary rays, the tubes are also enclosed in thin rubber envelopes. The method is well illustrated in the article.

Tables are given showing the details of treatment of 13 cases of carcinoma of the cervix and 4 of carcinoma of the vulva and vagina, including the length of treatment in each case. All patients appear to be cured clinically, that is to say, they exhibit complete scarformation locally and no sign of carcinoma tissue microscopically. As no case is older than a half year, of course it remains to be seen whether the cures are permanent. The authors admit that the most important and difficult question is as to the far reaching action, that is, the possibility of influencing the adjacent and remote metastases of the primary tumor. A conclusive answer can be given only after several

years of observation and in proof, a case is cited of carcinoma of the eye lid cured by Lassar with radium in which a recurrence appears after 8 years.

Last June Professor Bumm showed in his clinic a uterus removed from a woman who had presented herself some weeks previously with an inoperable carcinoma of the cervix. Under X-rays and mesothorium the case became operable and the uterus was removed. Macroscopically there was no evidence of disease but Professor Bumm stated that the microscopic examination would probably reveal some evidence of carcinoma.

Later in the summer, I had the opportunity to observe the treatment applied to two patients through the courtesy of Doctor Warnekros, second assistant in Bumm's clinic, who has charge of the cases under Bumm's direction. As the available supply of the clinic, worth 100,000 marks or \$25,000, was used on these two patients, I may be pardoned for confining my remarks to a liberal translation of the article quoted and for my failure to conclude by citing cases from my own case records.

As evidence of the widespread interest in this treatment in Europe, I shall call your attention briefly to an article which appeared in the *Berliner Lokal Anzeiger*, August 24, 1913. I use this article for two reasons, first, because it gives the views of three eminent authorities and second, because it is an example, it seems to me, of the highest type of ethical journalism, an ideal which we may well recommend to those responsible for our own daily mental pabulum. The editor explains that, on account of the widespread interest in the cancer problem and because radium-mesothorium are at present in the focus of public interest, in order to give his readers accurate information on the subject he has invited three of the highest authorities to inform them whether or not good results are to be looked for from the treatment and as to the attitude which city and state officials ought to take with reference to purchasing supplies to be lent for use. The three authorities are Professors Kroenig, of Freiburg, Sticker and Blaschko, of Berlin.

Professor Kroenig answers the first question decidedly in the affirmative but states that observations have extended over too short a time to make dogmatic assertions as to permanent cures. In regard to the second question he does not think it advisable for city or state officials to purchase radium and divide the quantity up among various institutions, as that would, in his



opinion injure rather than promote radium investigations. "It is not enough, simply to possess radium, to cure cancer, but it requires a fundamental knowledge of the physical and biological peculiarities of radium, to extend our powers."

Professor Sticker's views accord with those of Kroenig.

Professor Blaschko has had excellent results in the treatment of skin cancers, but agrees with the other authorities quoted that the treatment ought to be confined to institutions and to those especially skilled in it.

The letter of each writer appears in quotation marks, and there has been no attempt, apparently, on the part of the editor, to modify the statements to suit the popular taste, or what he might consider to be such, as is the practice so often in this country.

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**The Call of the Child.**—The Federal Children's Bureau is more than justifying itself according to Frances Bradley, Georgia, who gives (*Journal A. M. A.*, January 24), an account of the methods used by the bureau at the recent Conservation Exposition at Knoxville, Tenn. As a part of the Child Welfare Exhibit, a children's health conference was installed to determine the prospect of raising future healthy citizens. All parents were invited to bring their children but no scoring was done or prizes given, the natural incentive of parenthood and desire of the welfare of the child only being relied on, and the results justified the method. Husbands were as interested as wives and the parents were shown how they succeeded or failed to do their best for their offspring. The examinations were opened to all classes and conditions and to all ages under fifteen. Bradley gives a number of instances showing how valuable counsel could be given even when it seemed hardly needed as well as when the need was obvious. Faulty nutrition was shown to be the cause of most of the ills of the children brought in and an expert was secured to give practical demonstrations on the care and preparation of milk, the feeding of infants and school children and the wholesome preparation of the foods commonly used. The bottle-fed baby was found to be a city product but the breast-fed country child also gets a taste of everything the mother eats "to keep it from having colic." The conference seemed to establish certain facts which are given in conclusion as follows: "1. The medical profession is alive and quite able to care for the children of the country without resorting to hysterical or spectacular methods. 2. It does not need the financial backing of advertising concerns to point the way to its duty. This work may be kept free of commercial entanglement and on the usual high plane of professional activities. 3. The medical profession stands ready to give of its knowledge and efforts to the uplift of mankind, and the little child shall not call in vain." Bradley hopes that the work of raising the standard of public health may remain in the hands of the government and of the medical profession to work together in this most important phase of conservation.

## THE PAIN DISTRIBUTION IN DIAPHRAGMATIC PLEURISY

By RICHARD DEXTER, M. D., Cleveland

Authorities are agreed that the phrenic nerve supplies both the pleural and peritoneal coverings of the diaphragm, except for a narrow rim about the edge of the diaphragm which is supplied by branches from the 6th to the 12th intercostal nerves. The parietal pleura receives its nerve supply from the intercostal, the sympathetic and the vagus nerves.

Pain referred to the neck or to the abdomen, in inflammation of the diaphragmatic pleura, has been frequently noted. In 1879, De Mussy (1) described a point of tenderness over the phrenic nerve in the neck, and another tender point in the hypochondrium, both of which occurred frequently in cases of diaphragmatic pleurisy. The abdominal pain occurring early in cases of pneumonia at the bases of the lungs has been considered to be due to an accompanying inflammation of the diaphragmatic pleura.

In 1911, Capps (2) reported a series of ingenious observations on the distribution of the pain sensation, which occurred when the pleural surface of the diaphragm was irritated. In a number of cases of pleurisy with effusion, which required paracentesis, Capps inserted a long, blunt wire through the needle before any fluid had been drawn off. In this way he was able to make pressure on different parts of the diaphragmatic pleura, and to observe the distribution of the painful sensations which resulted from this procedure. He found that pressure over the surface of the diaphragm caused painful sensations in areas remote from the point of irritation. He further found that these painful areas bore a constant relation to the portion of the diaphragm on which pressure was exerted. When pressure was made on the outer edge of the diaphragm there resulted a sensation of pain in the abdomen, in the flank or in the lower thorax. On the other hand, when the central portion of the diaphragm was irritated, pain appeared along the ridge of the trapezius muscle, or in the shoulder. These painful areas were frequently associated with hyperaesthesia or hyperalgesia of the skin and with tenderness on pressure over these points. The pressure over the diaphragm caused no local sensation of pain

(1) De Mussy: *Arch. General de Med.*, Paris, 1879, II.

(2) Capps: *Archiv. Int. Med.*, 1911, VIII.



in that structure, an observation which has also been made by James MacKenzie (3).

It is interesting to note that the pain resulting from the irritation of the central portion of the diaphragm, which is supplied by the phrenic nerve, appears in the area of the 3rd or 4th cervical segment, and that the painful areas resulting from pressure on the outer rim of the diaphragm is that of the lower dorsal segments, and is thus a true visceral referred pain, according to the definitions of Head (4) and James MacKenzie (3).

I have observed two cases which illustrate the pain distribution in diaphragmatic irritation so well that they seem to warrant reporting:

*Case I.* H. C., male, 44 years old, admitted to the Cleveland City Hospital on November 27, 1912. His family and past history were not important. On the day previous to admission, he was seized with a sharp pain in the abdomen. The pain was most marked in the left upper quadrant, but was general over the left side of the abdomen, and was referred to the left flank as well. He vomited once. There was no blood in the vomitus.

When seen the patient was evidently in considerable pain. The heart and lungs were not remarkable, except that there were a few coarse, dry rales throughout both lungs. The excursion at both bases was good and there was a Litton's sign on each side. Deep inspiration seemed to increase the abdominal pain somewhat. There was tenderness over the whole left side of the abdomen, which was more marked in the upper quadrant, at which point there was slight spasm of the muscles on pressure. The temperature was 100 degrees F. The respirations 22 per minute. The pulse 70. The urine showed no abnormalities. The white count was 28,000.

On the day after admission the patient began to hiccough. The abdominal pain was still severe. The pain in the left flank was still present. The hiccough naturally suggested irritation of the phrenic nerve, but on account of the distribution, it was deemed probable that the cause of the trouble lay beneath the diaphragm.

On the third day after admission, it was noted that there was very definite hyperaesthesia and hyperalgesia over the left upper quadrant of the abdomen. The pain and tenderness re-

(3) MacKenzie, James: *Symptoms and Their Interpretation*.

(4) Head: *Brain*, 1893-1894-1896.

mained about the same. The patient continued to hiccough constantly. No further signs could be detected in the lungs. During the next two days the hiccough continued, though the abdominal pain cleared up completely.

Six days after admission it was noted that pressure over the left phrenic nerve in the neck caused great pain, and that pinching the skin over the ridge of the left trapezius muscle also was very painful. There was no skin hyperaesthesia. On this day the temperature, which had ranged between 100 degrees and 102 degrees since admission, became normal. The white count was 7,500.

The pain and tenderness in the neck remained for 24 hours and then disappeared. The patient continued to hiccough almost constantly until the 9th day of his stay in the hospital.

On the 10th day the temperature rose again to 101.5 degrees, and the patient complained of pain in the right side of the abdomen, which was accompanied with tenderness in the right upper quadrant. There was also tenderness over the right phrenic nerve in the neck. The white count was 16,000.

On the 11th day, a circumscribed friction rub was heard at the right base behind. From then on the symptoms abated and the patient made a rapid recovery.

In this case, the onset and early course of the condition strongly suggested an acute abdominal process. The development of uncontrollable hiccough pointed to irritation of the diaphragm, but at first the presumption was that the inflammation was below the diaphragm rather than above it, especially in the absence of any signs of lung involvement. The appearance of the pain and tenderness over the trapezius muscle, and the disappearance of the abdominal pain, suggested an irritation of the upper surface of the diaphragm, which, it seems to me, was amply substantiated by the reappearance of a similar though not so well marked chain of symptoms on the right side, accompanied as they were by a friction rub. It is interesting that in this case there were at no time any signs, even remotely, suggesting the existence of a pulmonary infiltration.

*Case II.* E. R., female, 22 years old, was admitted to the Cleveland City Hospital on November 20, 1913. She complained of vomiting and abdominal pain. The patient was in the 3rd month of pregnancy. A few days before admission to the hospital, she began to have pain on the right side of the abdomen,



had been feverish, and had begun to cough. Physical examination showed a well-developed and nourished young woman. There was slight dullness at the base of the right lung, below the angle of the scapula. The excursion of the lung was somewhat limited on the right. The fremitus was slightly increased at the right base. There were a number of fine crackling râles over the right lower lobe behind, with a somewhat prolonged expiration. The subcostal angle moved normally.

The abdomen was everywhere soft. There was no rigidity and no masses were palpable. The right upper quadrant was uniformly tender on pressure, and the skin of this region showed marked hyperaesthesia and hyperalgesia. Examination of the cardio-vascular system showed nothing abnormal.

The ridge of the right trapezius muscle was very tender, and the skin over this area was distinctly hyperaesthetic. The patient hiccupped frequently during the examination.

The temperature was 100 degrees F. The respirations were 26. The pulse was 110. The urine was negative. The leucocyte count was 19,600.

Further observation on this case was not possible as she left the hospital against advice, with the condition practically unchanged.

In this case there was evidently an infiltration of the lower lobe of the right lung. In the presence of abdominal pain, tenderness and skin hyperaesthesia, as well as pain and tenderness in the region of the right trapezius muscle, it is reasonable to suppose that there was an inflammation of the diaphragmatic pleura.

In connection with the above cases, Capps' (2) observations on 19 cases of diaphragmatic pleurisy are of interest. Out of 19 cases he found that 8 had pain in the abdomen as far down as the naval and that in 11 cases the pain extended all over one half of the abdomen. The pain was spontaneous, and was associated with tenderness on pressure. He found hyperalgesia and hyperaesthesia constantly over the painful areas. In 11 out of the 19 cases he found pain over the ridge of the trapezius muscle or on the side of the neck.

While the majority of the cases of diaphragmatic pleurisy will, in all probability, be associated with involvement of the base of the lung, there are a certain number in which no such involvement can be demonstrated. In these cases the distribu-

tion of the pain towards the abdomen may lead to a diagnosis of an acute condition in the upper abdomen. It is in this class of cases, that the recognition of the pain and tenderness in the neck region, will materially help in the differential diagnosis.

With inflammation of the central portion of the diaphragm, we may expect the pain to be referred to the region of the neck, while if the outer edge of the diaphragm be irritated the pain will be referred along the dorsal segments to the abdomen.

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**Infantile Paralysis.**—The importance of the treatment of infantile paralysis, in view of its prevalence in late years, is emphasized by R. W. Lovett, Boston (*Journal A. M. A.*, January 24). The diagnosis of the disease in its early stages is often overlooked, but he thinks this of less importance, as when it has become established, it is doubtful whether anything can be done which will greatly influence it in its course. Flexner found that hexamethylenamin seemed to have a slight immunizing effect on monkeys, and Lovett thinks that cases have sometimes occurred suggesting its possible value in the human subject even after the infection has taken place. An observation of his own is reported in which three children equally sick were treated, one without the drug, another with a little, and a third with large doses. The first was severely paralyzed, the second, slightly so, and the third had no paralysis. This of course proves nothing but he thinks that, as the drug is harmless, in moderate doses, it is worth a trial in suspected cases. As regards the treatment of acute phase it is pretty uniformly agreed on to be that of a hemorrhagic myelitis and with a wide-spread accompanying meningitis, requiring quiet, and recumbency for days or weeks. Even in the slighter cases immediate recovery is impossible, but the dose of the poison varies immensely, and care is needed in the estimation of the results of any treatment. According to Wood, who traced 234 cases of paralysis, 25 per cent recovered without any treatment, though in the early stages they seemed as unlikely as any. The outcome of the case is, therefore, not to be judged by the treatment received, and parents are often slow to grasp this point. The stages of the disease grade into each other, but after the fever and during the existence of paralysis and tenderness, and slow convalescence, Lovett thinks there is but little to be done in the way of active treatment, except in preventing the contraction of the Achilles tendon, which may occur to a troublesome extent, in the first three or four weeks. Electricity, massage, etc., had better be deferred until after tenderness has disappeared. The tendon contraction mentioned can be prevented by gentle stretching of the calf muscles, and better by keeping the foot at a right angle to the leg, placing it against a box upright in the bed. The treatment after the tenderness has disappeared may be more active, and the sooner the patient is put on his feet the better. The therapeutic measures at hand are, massage, electricity, and muscle-training. Massage may improve the local and general circulation and retard muscle deterioration; and electricity may have some value, but Lovett admits few beneficial results from its use. Muscle-training is apparently the most useful of the three. It aids the motor centers not completely destroyed to regain their function, and by it we may also open new paths when the centers have been destroyed. A detailed account of muscle-training has been given by Wright, who describes the various exercises to be used. Getting the patient onto his feet as soon as possible is also equally useful. Many patients in the beginning are unable to use their limbs without braces or apparatus, and these are very useful. The fear that they will promote muscular atrophy is unwarranted. The best way to avoid permanent need for them is to use them early and as long as necessary. If a fixed deformity exists, impairing the use of a joint, surgery can be called in to correct it and to improve muscular function and secure stability of useless joints. Lovett mentions the operations of tendinous transplantation, arthrodesis and various other orthopedic measures which can be done a considerable time after the causing disease. There seems to be no time limit for improvement.



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## EDITORIAL

### THE HOME HOSPITAL EXPERIMENT

In the present great crusade against tuberculosis one of the most baffling problems is that battle of poverty and disease that must, many times, be fought out in the home. A recent report sent out by the New York Association for Improving the Condition of the Poor describes the results of the first year's

progress of the Home Hospital, an experiment intended to demonstrate the efficacy of fighting tuberculosis in the city tenements. It is certainly to be hoped that this report may have a wide distribution as every physician and sociologist will be greatly interested in its findings. To our readers we may give merely an outline of the basis upon which the experiment is operated.

"The Home Hospital is an experiment in the combined treatment of poverty and tuberculosis begun in the East River Homes, New York City, March 18, 1912. During the first year it has occupied one unit of twenty-four apartments with a capacity for twenty-one families. The other apartments were required for clinical and administrative purposes. The duration of the enterprise as an experiment is for three years. More than half the funds for its support have been definitely pledged for that period and at present the balance for the second year has been subscribed. The New York Association for Improving the Condition of the Poor had the experiment under consideration for more than a year before it was undertaken, the plan being submitted to recognized experts in the social and medical aspects of tuberculosis, receiving their approval and encouragement. The committee regards this experiment as one of the most significant which the Association has ever undertaken with a view to diminishing poverty by striking at its causes.

When a disease in a single city shows an annual death roll of ten thousand lives, seizes yearly upon more than twenty-two thousand new victims and has constantly more than fifty thousand unfortunates marked for death, evidently it creates an imperative problem. These in round numbers are the reported figures of the Department of Health of New York City for the year 1912 regarding tuberculosis. To relieve these conditions various agencies are at work. Among these and attaining valuable measures of success, are the dispensary with its clinic and visiting nurses; the preventorium for the treatment of children over four years of age and predisposed to tuberculosis; the sanatorium for the cure of incipient patients; and the hospital for the segregation and care of advanced cases. These agencies, excepting in part the dispensary, treat the patient apart from his home, are concerned with the individual rather than with the family as a unit, and deal almost entirely with the physical rather than with the social and economic needs.

But tuberculosis is not merely a human disease. It is a



social disorder, and the real problem is not alone the patient, but the family and the condition under which they live. For consumption is a house disease and the logical way to combat it is to attack the fundamental, predisposing cause, namely, the home working conditions. As these were basic in causing the disease, so their correction is vital to the permanent cure of the patient and to the eventual welfare of his family. To treat the social ills, therefore, is quite as important as to cure the disease, for without social rehabilitation the disease is most liable to recur in the patient and to continue in his family.

Based upon such convictions as these the Home Hospital experiment was established. More specifically, the object sought is to demonstrate by a three-year experiment that if sanitary housing with ample sunshine and fresh air, adequate relief, including good and abundant nourishment, freedom from undue work and worry, reasonable segregation, skillful medical care and constant nursing supervision be provided, it is possible:

1. To prevent the spread of tuberculosis from the sick to the well members of the family and particularly to protect the children from infection;
2. To cure many of the family who are in the early stages of the disease;
3. To secure improved health and larger earning capacity to patients whose cases are moderately advanced; and
4. To complete, at least in instances, the rehabilitation of the family, physically, economically and socially.

As its name implies, one of the purposes of the Hospital is to preserve the home. Therefore, so far as possible, each family is permitted and helped to live a normal life. The medical regime adopted is that of the best sanatoria and hospitals, including regular physical examinations, weekly sputum tests, adequate segregation of the more advanced cases, open windows and outdoor life upon balcony, the roof, or in the park near by, absolute rest for those who need it, and a graduated amount of exercise for appropriate cases, and constant medical oversight, nursing care and home inspection. A fresh-air school for the children is held on the roof, and other instruction is regularly given in cooking, sewing, nursing, care and feeding of infants, personal cleanliness, hygiene and sanitation. The patients encouraged to work on tasks proportioned to their increasing strength, are thus

prepared for a return to normal activity and to complete resumption of family responsibility. When the family is about to be discharged, the securing of employment and a sanitary home completes the care provided.

The advantages claimed for this method are: (1) the directness of its attack upon the home conditions as a crucial, underlying cause of tuberculosis and its consequent poverty, (2) the readiness with which unsuspected, incipient cases may be detected and checked, (3) the exceptional opportunity it affords for adequate control of the disease and family, (4) its avoidance of the opposition, deterrent influence, worry and other hardships inevitably occasioned by the separation of the sick from the well members of the family, (5) its preservation of the integrity of the home, (6) its care of classes of patients who either could not or would not go to institutions, (7) its fostering an increase of earning capacity in the wage-earner and a gradual return to normal conditions, (8) its provision against a return of either the patient or family to the inimical environment where the disease was contracted and is likely to recur, and (9) in its care not only for the physical but for the economic and social ills not merely of the patient but of the entire family.

Such a work is evidently hygienic or preventive, medical or curative, economic and educational, social and reformatory, unique and comprehensive. It aims at causes, seeks not only the cure of the individual but the protection of society, is concerned with the patient, his family and environment and deals with fundamental questions of ideals, of livelihood and of life.

The Committee emphasizes the fact that this experiment is not designed to demonstrate something to take the place of hospital segregation or sanatorium treatment, but whether or not it is possible even in a crowded city, given proper housing, sufficient food and sanitary supervision, to check the spread of tuberculosis, and to treat the disease with a reasonable measure of success. The experiment is planned as a supplement to, not as a substitute for, the hospital and the sanatorium. Home treatment is not proposed in preference to sanatorium treatment, but for hundreds now on our waiting lists, and for thousands now spreading contagion in dark, dirty tenements, it is home treatment or nothing, at least for years to come.

The Home Hospital was undertaken believing that its success would encourage the community vigorously to combat tuber-



culosis in the city tenements; would impel the community to begin the combat at once; would convince even the most doubtful ones that it is unnecessary to wait years until sufficient hospital and sanatorium facilities are available before attempting in a large way to eliminate tuberculosis; would stimulate the community to forbid the maintenance of unsanitary tenements and to construct buildings of the high standard set by the East River Homes, where persons having tuberculosis can be treated without the necessity of breaking up the home or without depriving the able-bodied of the opportunity to work and contribute at least in part to their support."

The result of the first year's work as described in this report has been so encouraging that it was felt to be exceedingly important to double the capacity of the Home Hospital, anticipating criticism that the number of the families is hardly large enough to warrant generalization, and also that the families constitute a selected group. If, on the other hand, the result of the second and third year of the experiment with more than twice the number of families is substantially as favorable as the first year's results, it is believed that the proposition will have been demonstrated and that it will carry compelling conviction to the entire country.

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**Chestnut Toxemia?**—T. C. Merrill, Washington, D. C. (*Journal A. M. A.*, January 24), calls attention to certain toxic symptoms that have been observed in persons after eating chestnuts from trees affected from the so-called chestnut blight due to a fungus which has been destructive in some of the New England States. Chestnuts from healthy trees are not considered toxic, but it should be remembered that during germination they are remarkable for enzymic activity and it is possible that liberation of toxic substances may then occur. The fungus of chestnut blight (*Endothia parasitica*) effects the nutrition by destroying the bark and while infection of the nut has been observed, such chestnuts are not likely to be eaten. Influences affecting the eatable portion may be due to perverted sap in the diseased trees. He gives a table of the symptoms observed in twenty-one cases which cannot be easily reproduced here but which is instructive. No positive claim is made that the symptoms are due to the eating of chestnuts. The *post hoc*, though present, is not here intended necessarily to mean *propter hoc*. It may take several chestnut seasons to determine this question. Food-poisoning, aside from chestnuts, is excluded in the series. The cases seem to be accompanied with gastro-enteric symptoms and great prostration and slow recovery seemed to be almost the rule. The term "great prostration" is used as indicating an effect disproportionate to any known cause. Chemical and biologic examination of chestnuts is now being carried on and the results are hoped to be reported in a future paper.

## DEPARTMENT OF THERAPEUTICS

Conducted by J. B. McGEE, M.D.

**Dementia Praecox:** Bayard Holmes in the *Medical Record* for Jan. 3d, writes concerning Lundvall's remedy for dementia praecox. The prognosis in dementia praecox has been and is almost uniformly unfavorable. In the State of Massachusetts only one out of each 1500 admitted to the State hospitals with this diagnosis, during seven years, recovered. The systematic writers give a rather better prognosis, allowing that any where from one to eight in each hundred recover with some defect. The duration of the disease is long, averaging more than ten years. These unhappy, often starving creatures of our neglect make up more than sixty per cent of the asylum population. With the growing indications, almost demonstrations of the physical and toxic etiology of dementia praecox, it is no wonder that efforts have been repeatedly made to bring about artificially the hyperleucocytosis which attends the improvement of these patients in their attacks of typhoid and other febrile diseases. The nucleates of sodium have been used by Donath, Fischer, Ittan and Lundvall. On nine patients, Ittan used subcutaneous injections at intervals of ten days or less, of 5cc. of a one per cent solution of the nucleat of sodium; chills, fever and leucocytosis followed, and in two cases betterment. One patient, mute for twelve years, volunteered conversation, and played chess. Lundvall proposes a more concentrated solution of the nucleates with sodium cinamate, and arsenic. He recommends the injection subcutaneously of 2 to 15 cc. of the following sterilized solution, at intervals corresponding to the duration of the reaction of four to twenty days; sodium nucleinate, 10,000; arsenous acid, 0.005; sodium cinamate, 1,000; distilled water, 40,000. While there is sometimes pain at the point of this injection, which is much relieved by hot applications, no abscesses were produced in several hundred cases injected by Lundvall. A few hours after the injection, there is a chill more or less pronounced, and the temperature rises two or more degrees. None of the patients were made worse by the treatment. In his thesis, Lundvall reports eighteen cases and of these, eight cases of dementia praecox recovered, some of them rapidly, some slowly, but all quite completely; five or six made remarkable improvement; of the remaining five cases, only three and these of doubtful diagnosis did not improve. Lundvall's patients were not selected from the very early or favorable cases, but were those in whom he had been able to follow out a long series of observations on the changing blood picture. It is too much to believe that we have in Lundvall's remedy a method of curing dementia praecox, but his modest report certainly commands us to investigate in our crowded institutions a method which has proved successful in 40 per cent of a most unpromising series of confirmed patients.

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**Pneumonia:** Solomon Solis Cohen in the December number of the *Monthly Cyclopedia*, treats of recent improvements in the quinin treatment of lobar and lobular pneumonia. The improvements to which reference is made are the use in an almost routine way of cocain and pituitary liquid and the addition of the pneumobacterin injections after the most acute symptoms have been controlled. Apart from fresh air, dependence has been placed on the following measures: First, the *effective* use of *massive* doses of quinin. The most potent preparation, namely the very soluble double hydrochloride of quinin and urea has been chosen, and one of the most active methods of administration, namely intramuscular injection of a 50 per cent solution is employed. Second, the hypodermic injection of cocain hydrochloride solution, or of an extract of the posterior lobe of the pituitary body, for the maintenance of blood pressure. Third, in cases of prolonged fever, delayed resolution, or tardy convalescence, the injection of bacterins (pneumo-



coccus, or "mixed" vaccines, personal or stock) has been resorted to in an endeavor to expedite recovery, and apparently with good result. Further experience with this is needed before positive general statements can be made. But in special instances the good influence has been striking. As to the details on admission, so soon as the diagnosis is verified, the patient, if a fairly strong adult, receives under proper precautions, an intramuscular injection of from 1 gm. (15 grains) to 1.6 gm. (25 grains) of the quinin and urea salt in 50 per cent solution in hot sterile water. Children, the aged, and the feeble receive smaller doses. The injection is repeated but rarely with a greater dose than 1 gm. (15 grains) every third hour until the temperature falls and remains below 102.2 Fahr. One-half grain (0.03 gm.) of cocain hydrochloride or of caffein (sodiosalicylate) or 1 cc. of pituitary liquid (representing 0.2 gm. of fresh posterior lobe) or 1 cc. of a 1:1000 solution of the posterior pituitary principle is injected hypodermically at the same time with the first dose of quinin, and repeated likewise every third hour, until the curve, representing systolic blood pressure in millimeters of mercury (taken in the arm) rises and *remains* above the curve representing pulse frequency in beats per minute. The injections of quinin are governed in part by the temperature, and in part by the general symptoms. The injections of cocain, caffein, or pituitary preparation are governed chiefly by the pulse pressure ratio, but also by the general character of the pulse, and of the cardiac action, the renal activity, and the general symptoms. Sometimes these agents are alternated; sometimes camphor (2 to 10 grains in sterilized olive oil) is used as an adjuvant or temporary succedaneum. He has also used epinephrin, atropin, strychnin, and even digitalis principles and preparations on occasion. But the routine is usually cocain and pituitary preparation. No invariable maximum limit has been fixed to the number of injections of quinin, of cocain, or pituitary liquid, but it has not been considered wise to continue the three-hourly injections beyond the first twenty-four hours and in but few cases has it been necessary to continue them so long as this. In general the effort is made to give as much quinin as is necessary and can safely be borne in the first forty-eight hours, and as little cocain, camphor, or pituitary as is necessary to keep the systolic blood pressure curve at a safe distance above the pulse-rate curve.

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**Ringworm:** Savill in the December number of the *Therapeutic Gazette* (via the Practitioner) reports on the use in ringworm of a lotion consisting of picric acid, seven grains; camphor, one-half ounce and rectified spirit, one-half ounce. Williams first employed it with success in the treatment of ringworm in certain ringworm schools. Since May, 1912, Savill has employed this lotion on over fifty cases of ringworm of which records were kept. Some of the children had been treated for months by other recommended cures, such as the painful, though excellent method of salt and vaselin, various proprietary preparations, both lotions and ointments containing iodine, and ointments containing mercury, sulphur and carbolic acid. He used the picric acid and camphor lotion, on both new and previously treated cases. To obtain success, certain points must be carefully observed. In a number of cases which had given disappointing results at first, success was immediate after Savill had personally inspected the bottle of lotion supplied, and made certain that the mother understood that it required thorough shaking before use, so that no precipitated camphor remained at the bottom of the bottle. Directions were given that the hair should be cut around the diseased patch in the usual way, and the lotion painted on with an ordinary camel's hair brush, morning and evening. As the lotion evaporates, a yellow powder accumulates on the head. This powder must be washed away lightly at least twice a week, so as to insure that the fresh application reaches the scalp. Savill found it important to cut the hair short by clipping or shaving two or three times a week, otherwise

the lotion did not penetrate to the scalp, but accumulated on the hairs. If all the details are carefully observed, the hair becomes loosened in about three or four weeks, and can readily be pulled out by epilation forceps. Epilation should be carefully performed lest the hair be broken, and the disease remain in the follicle. After having tried many vaunted remedies without success, Savill was glad to find at last, one which gave most of the results anticipated.

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**Vincent's Angina:** Douglas Wood in *Merck's Archives* for December, considers Vincent's Angina. There is generally a history of lowered resistance, with some nose and throat trouble, especially hypertrophied tonsils and adenoids and defective gums. There is no question about the conditions being contagious, for in five of his cases, in children, all developed the infection one after another, all having drunk out of the same dipper that an adult was drinking from who gave a history of Vincent's Angina. It is generally unilateral, and shows very little reaction outside of the actual involvement. There is nothing especially characteristic about the ulcers, except the little local reaction. They are often covered with dirty old rag membrane. In either case there is little pain or systemic disturbance. As to treatment, various antiseptic solutions have been used. As most of the infections start in or about the follicles, he has had best results with silver nitrate. First cleaning out the crypt, or in case of an ulcer the base, with hydrogen peroxide, then fuse silver nitrate on the probe and touch up the ulcer. In the case of the crypt, cauterize to the bottom. The pyorrhea must be treated by a dentist successfully. Touch up the gums with tincture of iodine, and give hydrogen peroxide gargle because the organism is anerobic. Later hypertrophied tonsils, adenoids and nasal conditions should be taken care of. Pike says it is hard to get rid of the spirilla, even after the teeth are treated, and the pus is gone. One may have to use the silver nitrate three or four times. All of his cases responded very rapidly to this treatment. Potassium chlorate internally and as a gargle has been said to be a specific. This is not his experience, but he does believe that silver nitrate is as much so as anything. Vincent's Angina while known only for a few years, and is comparatively common, and without being recognized, would account for the many unsuccessful results in the treatment of angina that would otherwise be simple. The question arises as to the effect that Vincent's spirilla would have on the Wassermann's test especially in a chronic condition. Several cases of Vincent's have been reported cured with salvarsan.

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**Lobar Pneumonia:** Samuel E. Earp in the *Medical Times* for January, states that in the treatment of lobar pneumonia, good nursing and hygienic conditions are apropos. While perhaps a repetition, he insists upon absolute cleanliness of the room and care that all emanations from the body shall be removed as soon as possible. The windows are taken out, and in their place, cheese cloth is tacked to the frame. Alcohol baths are given twice a day. For internal administration he uses a combination of guaicol carbonate, quinin sulphate and spartein sulphate. Hexamethylenamin, five grains three times a day is employed, as he believes it performs an important office in toxæmic conditions and particularly in pneumococœmia. There are times when the temperature will subside when aspirin is given. Digitalis and strychnin to be used when indications warrant and not as routine therapy. Camphorated oil used hypodermically has in a few instances served him well in the extreme failure of vital forces. When there is a great amount of lung involvement, with only a small area functioning, oxygen has rendered a good service and the necessity for its use should be recognized early. He emphasizes the fact that one is often apt to wait too long, using it only as a last resort, when it is useless at that time. He regards it as an



important agent if used sufficiently early. The skin should be left free, to act, and not hampered by poultices, or a packet. Following this idea also adds to the comfort of the patient. Serum therapy has only given him fair results and his experience with vaccines has not led him to become a warm advocate of their use. Diet is of great importance and should be light and nourishing in character.

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**Strophanthin:** In the January number of the *Journal of Pharmacology and Experimental Therapeutics*, A. J. Clark considers the mode of action of strophanthin upon cardiac tissue. The effects of cardiac glucosides upon the isolated frog's heart, have been investigated by very many workers, but unfortunately there is a wide divergence of opinion as to the exact mode of action of these drugs. His summaries concerning strophanthin are, (1) the primary effect of strophanthin upon the isolated heart is to increase the force of contraction; in the fresh heart the force of auricular contraction is increased markedly, but the force of the ventricular contraction less markedly. In the hypodynamic heart, the force of contraction of both auricle and ventricle is increased greatly. (2) The systolic action of strophanthin is opposed by the presence of acid, by the absence of calcium and by the hypodynamic condition. (3) The action of strophanthin in impairing the rate of conduction, is not antagonized but rather increased by the above conditions. This action moreover is not antagonized by any other changes in the tonic content of Ringer. (4) The action of strophanthin upon conduction appears to be largely independent of its action upon contraction. (5) The acids produced by the heart and which accumulate when perfusion is arrested can be shown to antagonize the systolic action of strophanthin and this fact explains why hearts, arrested in systole, by strophanthin, often relax into diastole, and also why hearts in which the condition is impaired before any systolic action has been produced usually die in diastole, and not in systole.

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**Strychnin:** In the October number of the *Quarterly Journal of Medicine*, John Parkinson and R. A. Rowlands, state that strychnin is widely employed as a rapid heart stimulant. Their inquiry was undertaken to obtain evidence as to its immediate effects when given subcutaneously, in cases of severe heart failure. As a result of such investigation upon fifty cases, in which the dose was uniformly one-fifteenth of a grain of strychnin sulphate, their conclusions are: they found no evidence that the subcutaneous injection of a full dose of strychnin in cases of heart failure with a regular rhythm, produces any change in the blood-pressure, rate of pulse, rate of respiration, or general symptoms, within the hour following its administration. In cases with auricular fibrillation, strychnin produced no change in the rate or regularity of the pulse rate, of respiration, or general symptoms during the same period. They conclude that strychnin has no effect which justifies its employment as a rapid cardiac stimulant in cases of heart failure.

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**Gonorrheal Rheumatism:** *American Medicine* for December quotes Sainz de Aza as having reported to the Spanish Medico-chirurgical Academy that he had poor results with anti-gonococcic serum in gonorrheal rheumatism, not only failing to obtain curative effects, but not even shortening the course of the disease, nor preventing ankylosis. Vaccines were but little more successful in his hands, with sodium salicylate, however, employed at first for diagnostic purposes, he accomplished wonders, prostatitis and epididymitis yielding as well as the articular manifestations. Injected around the joints, the salicylate first increases pain, but there soon follows a sedation as great as that produced by morphin, then the swelling diminishes and amelioration is marked. Injections should be made every two days, and after

the third injection the improvement is generally very satisfactory. If several joints are attacked, it is best to make an intravenous injection of a 20 per cent solution, four grammes being used, representing one gramme or fifteen grains of salicylate. The veins support these injections very well and their effect is really quite marvelous. One case in which the knee joint was involved, was quite relieved after two injections; another with epididymitis was able to walk, five hours after a single injection. In other cases results were not quite so good and in a very few there were none. As at present there is no specific for the disease, he thought we should use sodium salicylate in all these cases although a colleague, Garcia Sierra, had obtained favorable results from the antigonococcic serum in two cases, one with both articular and cardiac localizations, the other with disease in the elbow, treated by rest and puncture without improvement.

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**Sulphuric Ether Lavage.**—In a preliminary clinical report of thirty cases treated by the Souligoux-Morestin method of sulphuric ether lavage of the peritoneal cavity, G. De Tarnowsky, Chicago (*Journal A. M. A.*, January 24), says that his attention was called to the method during a recent visit to the Paris clinics where it is used in five hospitals as a routine measure in all laparotomies. It was his privilege to watch the *modus operandi* and to notice the absence of unfavorable sequels. Eight years' experience with ether as a local disinfectant had convinced him already that it was harmless as regards cell degeneration and he quotes the French authorities to the same effect. He began using it in his abdominal operations in the latter part of August, 1913, in both private and charity cases with uniformly gratifying results. The technic is described by him as follows: "After removal of pathologic tissue free pus is carefully wiped out; then ether is freely poured into the abdomen and is allowed to come in contact with all the viscera in a case of general peritonitis. The viscera are literally washed in ether, hence the term "lavage" adopted by the French. As much as a quart of ether has been thus used. After having remained in contact with the abdominal organs for from two to five minutes, it is mopped out by means of gauze sponges and the abdomen is closed with one small drain. In circumscribed peritonitis the pus cavity, having been wiped out, is filled with ether and the abdomen is closed without drainage. In pelvic peritonitis, ether-soaked sponges are applied to all involved surfaces, and then 2 ounces of ether are poured into Douglas' pouch and the abdomen is closed without drainage. The immediate effect of ether, thus applied, is to cause a momentary capillary contraction followed by hyperemia of the viscera. There is a moderate formation of carbon dioxide in the abdomen, evinced by a bubbling sound and the escape of bubbles from the surface of the ether. Ether is slowly absorbed by the serosa; that is proved by the fact that no change in the anesthesia of the patient has been reported to date." De Tarnowsky's thirty cases included three cases of gangrenous appendicitis with general peritonitis, four cases of localized abdominal peritonitis, two of pelvic peritonitis and one of acute cholecystitis with adhesions in which the bactericidal action was very apparent. The remaining cases were not acutely septic. In 75 per cent the postoperative pain and restlessness were lessened and were not increased in the remaining 25 per cent. He is convinced that there is less pain than there is ordinarily encountered and there was no mortality in this series. Experimental study on animals is being carried on by Doctor Bissel in the Cook County Hospital and will be reported later.



## NEW AND NONOFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies, 1913, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

**Digipoten.**—Digipoten consists of the digitalis glucosides in soluble form, diluted with milk sugar to give it a strength equal to that of digitalis of good quality. Digipoten is adjusted by the frog and guinea pig methods to have a strength of 1400 heart tonic units and by chemical assay to contain from 0.3 to 0.4 per cent digitoxin. The action, uses and dosage of digipoten are the same as those of digitalis. It is sold in the form of a powder, which is soluble in water, and as Digipoten Tablets, each containing 0.03 Gm. The Abbott Alkaloidal Co., Chicago. Ill. (Jour. A. M. A., Dec. 6, 1913, p. 2069).

**Tannigen Tablets.**—Each tablet contains tannigen (see N. N. R., 1913) 0.5 Gm. The Bayer Co., New York City (Jour. Dec. 6, 1913, p. 2069).

**Bordet-Gengou Bacillus Vaccine for Whooping-Cough Phophylaxis.**—Greeley Laboratories, Inc., New York.

**Bordet-Gengou Bacillus Vaccine for Whooping-Cough Therapy.**—This vaccine is believed to be of service in the prevention and also in the treatment of whooping-cough. Greeley Laboratories, Inc., New York City (Jour. A. M. A., Dec. 13, 1913, p. 2158).

**Culture of Bacillus Bulgaricus, Fairchild.**—A liquid culture of the Bacillus Bulgaricus. The culture is sold in packages containing 6 and 30 vials, respectively. The culture is used internally in the treatment of intestinal putrefactive diseases and as an application to body cavities in the treatment of suppurative conditions. Fairchild Bros. & Foster, New York (Jour. A. M. A., Dec. 13, 1913, p. 2158).

**Slee's Antimeningitis Serum.**—For description of Antimeningococcus Serum see N. N. R., 1913, p. 215. The Abbott Alkaloidal Co., Chicago.

**Slee's Antistreptococcic Serum.**—For description of Antistreptococcus Serum see N. N. R., 1913, p. 216. The Abbott Alkaloidal Co., Chicago (Jour. A. M. A., Dec. 20, 1913, p. 2242).

Since December 1 the following action has been taken:

The following articles have been accepted for inclusion with New and Nonofficial Remedies:

Bayer Company, Inc.:

Elarson.

Elarson Tablets.

Hynson, Westcott & Co.:

Sterile Ampoules of Mercury Salicylate.

Salvarsan—"606"—Ehrlich, Suspension Ampoules.

Neosalvarsan, Ehrlich, Suspension in Ampoules.

Mallinckrodt Chemical Works:

Sodium Acid Phosphate.

Parke, Davis & Co.:

Emetine Hydrochloride Ampoules.

Powers-Weightman-Rosengarten Co.:

Sodium Acid Phosphate.

Radium Chemical Co.:

Radium Chloride.

Radium Sulphate.

Change of Title—

Fairchild Bros. & Foster:

The manufacturer having changed the name Essence of Pepsin, Fairchild to Pepsencia, the Council directed that the corre-

sponding change of title be made in New and Nonofficial Remedies.

Articles omitted from N. N. R.—

Armour & Co.:

Having been withdrawn from the market the Council voted that Glycerole Trypsin, Armour, be omitted from New and Nonofficial Remedies.

Pitman-Myers Co.:

Having voted not to accept papain for inclusion with New and Nonofficial Remedies, the council voted to omit the Aromatic Cordial, P. M. Co. from the appendix to New and Nonofficial Remedies.

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**Pellagra.**—G. M. Niles, Atlanta, Ga., (*Journal A. M. A.*, Jan. 24), while admitting that the etiology and pathology of pellagra are yet obscure, thinks that the disease is more manageable than it is sometimes considered to be and gives the details of his method of treatment. The hygienic measures, he says, are the same as those of other exhaustive diseases with two exceptions. The first is that alcoholic beverages in any amount seem to be highly detrimental, and the other is that sunlight should be avoided, as the actinic rays seems to have an especially irritating effect which is most marked in early spring. In the diet he prohibits corn bread and corn products unless he knows that they are perfectly fresh and that the corn has undergone no heating. Until the "zeist" theory is completely disproved we owe our patients this precaution. As to other dietetic measures, it must be kept in mind that the disease is not primarily localized in the gastro-intestinal tract, but is a centralized irritation, plus the effect of toxins eliminated through that tract. The early diarrhea is mainly of central origin and to some extent compensatory and therefore does not call for a very limited regimen. Woody vegetables and foods yielding a large residue in the bowels are mechanically contra-indicated and should be replaced by other nourishing foods. The fleshy proteins are especially well borne. Sweet milk is valuable when it agrees with patient but advising immoderate amounts without determining the digestive ability is bad practice. During the whole course of pellagra the patient should be nourished to the limit of assimilation and will generally bear and care for more ailment than when the stomach is similarly irritated from other disorders. Hypodermically, he uses iron arsenite and sodium cacodylate on alternate days for about two weeks in small doses. After the acute symptoms seem controlled he gives two injections weekly for several months. Sometimes when the patient is anemic he uses iron preparations instead. Internally he employs a combination of saturated solution of potassium iodid and Fowler's solution in proportion of five of the first and three of the second, beginning with 5 drops in water, 3 t. i. d., gradually increasing a drop a day until arsenical symptoms appear. If gastric or intestinal intolerance occurs the proportion of Fowler's solution is diminished. The diarrhea is controlled by bismuth, betanaphthol, etc., and if severe by tannigen or opium; kerosene oil enemas have also been found useful by Niles. For the infrequent constipation, the milder cathartics only should be used. The details of the local lesions are given. He does not favor the use of salvarsan. Hydrotherapy has proved beneficial in many cases and he would employ it in some form of hot and cold baths, packs, douches, etc., in almost every case. The value of encouragements to the patients and of combating the pellagraphobia which embarrasses the treatment is specially mentioned. He thinks by suitable suggestions the nerve degeneration can be helped. His experience has taught him that the prognosis should be guarded in four classes of cases: persons over 50 years of age; alcoholics; patients with marked mental symptoms; and the weak-minded persons who change their treatment from one method to another. If the patient, however, is under 50, will adhere to a fixed line of treatment, and faithfully cooperate with the physician a permanent cure can be expected in the majority of cases.



## The Academy of Medicine of Cleveland

### ACADEMY MEETING

The one hundred and sixth regular meeting of the Academy was held at 8:00 P. M. Friday, January 23, 1914, at the Cleveland Medical Library, with the president, J. J. Thomas, in the chair.

The following program of cases and paper was presented:

#### Cases presented:

Sam Burger presented four cases of Raynaud's disease occurring in four children, all members of the same family. So far as is known, there is no mention in the literature of this disease where it has affected so many of the same family. It was learned that the father suffered from the same disease. The children are of Jewish descent, and it is known that the disease is much more prevalent in this race. The children give a history of having had sore feet for the past two winters. They complain of pain in the feet at night and in the evening. The toes are affected, and the lesions are symmetrical in arrangement and show all stages of involvement, from inflammation to ulceration and actual gangrene. Several mottled areas were seen upon the feet, marking the sites of previous involvement.

In discussing these cases, Walter G. Stern said that acrocyanosis and acromelalgia were frequently the causative factors in gangrene. Doctor Weir Mitchell has said that he did not consider that these vaso-motor disturbances led on to gangrene, but some of his cases afterward developed it. Acrotrophoneurosis is sometimes seen following a trauma. He had in mind a case where six months after injury the parts showed a play of color and a blanching of the skin; this led to a suspicion of gangrene. There are a number of cases of Raynaud's diseases in the city. At the Orphan Asylum, on Woodland Avenue, there are at the present time two children whose condition is similar to that of the cases shown by Doctor Burger. Their father died of the disease two years ago.

#### Paper presented:

#### 1. Public Welfare, by Harris R. Cooley, Director of Public Welfare.

Cleveland is the first city of its size to create a special department covering all the public welfare activities. This is a great step in advance and furnishes the considerable advantage of placing all the work of this character upon an equal basis. The department has five main divisions.

The first to be considered will be the Department of Health. This department has many sub-departments. There are: (1) Department of Child Hygiene, which takes the child at its earliest period of life and has for its object the development of that child into a strong, healthy adult. (2) Department of Contagious Diseases. (3) Tuberculosis Department. (4) Department of Vital Statistics. (5) Department of Labor. (6) Department of Sanitation, which looks especially to the housing and environment of the people in the congested districts of the city. This is an extremely important work and it is to be hoped that the city will be forearmed and thus enabled to prevent the congested conditions, with which New York City is now struggling. (7) Department of Meat and Milk Inspection, insuring that the food entering our city will be wholesome and free from infection.

There is still room for improvement in the Health Department, and it is to be hoped that the discussion of this subject tonight will bring out some other needs.

The second great division of the Department of Public Welfare is the Department of Charities and Corrections. This department has under its control the Cooley Farm of over 2,000 acres. Here we have the Alms-house people; the group of buildings for the tuberculosis patients, more than a mile distant from the alms-house; and the Cor-

rection Farm, where there are over six hundred work-house prisoners, this farm being a mile and a half from the other divisions of the farm. The whole farm is operated upon the principle that a normal environment tends to redevelop a normal life. People who live in the congested districts of the city become diseased. Tuberculosis, insanity, vice, and crime are the symptoms of their physical, mental, or moral disease—environment disease. The first thing to do is to place these people in a normal environment. The farm then gives its inmates an opportunity to do useful work. The heavy work is done by the prisoners, the light work by the aged and the tuberculosis patients. This work is good for all, physically, mentally and morally. A representative of the Curtiss Publishing Company visited the farm today and expressed much surprise to see the prisoners working outside, free and apparently unrestrained. Our prisoners do not run away because we trust them; there is something about trusting a man that restores his manhood and his self-respect. The old form of prison life, with the stripes, the lock-step, the narrow cells and confined work is all wrong; the saints, themselves, if they were subjected to such treatment for six months, would be done a moral and spiritual hurt and would develop traits that were never suspected.

There is also the Boys' Farm at Hudson, where there are one hundred and sixty boys. Here we have tried to reproduce and develop the home life of the average farm. Wonderful results are being accomplished out there. The city expresses "good will" for these boys. Every boy has the right of the opportunity to grow to be a normal man, and this city is trying to give this opportunity to those who need it. We are about to establish a home for girls upon the same plan. Here we will teach sewing, cooking, gardening, and chicken raising; we will attempt to develop in them a love for the open, and train them in the way to become normal, healthful, helpful women, wives and mothers.

We are planning to build a great City Hospital on Scranton Road. The original difficulty with the City Hospital was that the Alms-house was situated so near at hand, that the hospital was considered by the public to be a part of it. Our first move, therefore, was to move the Alms-House out to the Warrensville colony. Next we intend to erect a hospital that will be a credit to itself and to the city. Work is already begun, the Administration Building is nearing completion, and we hope that in the near future we will have a Home for Nurses, Hospital for Venereal Diseases and a Heating Plant.

It is also our hope to establish a Hospital for Convalescents. This will be built out in the country away from the city, and the patient that is able to leave his bed will go there for his final recovery. Physicians say that patients do well in the Hospital until they are able to get up and around; then the improvement ceases, or progresses much more slowly. The cause of this retarded convalescence is no doubt due to the fact that after patients are able to be up and about the hospital, they find nothing to do, so sit about and discuss with each other their operations and diseases. Is it any wonder that they are not restored to health at less expense of time and money? We have at the City Hospital many men and women who are recovering from sickness, or operations, who would be able to do a little work each day, but who are not yet strong enough to go into the shop or factory for a full day's work. There is no place for many of these people to go, for they cannot support themselves and consequently the hospital must keep them until they are able to go out and do a day's work. A Convalescent Hospital would furnish light work for these people and its maintenance, therefore, would be of practically no expense to the city.

Then there is the Relief Department for the help of the indigent within the city.

The most important department of all is the Department of Recreation. Most people think that this department is concerned chiefly with the play-ground movement for children, but this is really the smallest



part of the activity; it is concerned with the occupation of the leisure time of all the people, young and old alike. The next question that we have to solve in our national and social life is the occupation of the leisure hour. Civilization will surely decline if this time is to be spent in debauch, and just as surely will it advance if the leisure time of the people is spent in a normal, healthful way. This question might properly be called the Question of Civilization. The police records show that the great majority of the arrests occur on Saturday and Sunday and in the evenings, the times when the people are not at work. Social centers should be established all over the city. This work has already been started in Lincoln Park. Here we have bathing, and all other forms of outdoor recreation. In such centers there should be a Common Building, with halls and rooms for the Visiting Nurses. About this should be grouped the Fire and Police Stations, a Public Library and an Employment Bureau, making it a great People's Center.

Another division of the Public Welfare Department is that of Employment and Education. Here men can apply for work and the shops needing men in any capacity can find them here. A subdivision of this department is that of Immigration. If an immigrant train is coming in, this department is notified and several men speaking the language meet this train and extend a helping hand to these people who are strangers in a great city, and who know neither our language nor our customs.

We have also the Department of Research and Publicity. This department gathers data upon all subjects and it is certain that work of great value will be done. There are in the work-house men of arrested mental development; men who are forty years old in body and who have the mental development of an eight-year-old boy. We are to make a study of this condition, and we hope that we may contribute something valuable to the intellectual study of crime. The past ideas of punishment are entirely wrong. Punishment has been measured out to suit the crime; it has been "an eye for an eye, and a tooth for a tooth." It cannot be right for a judge to send a man to the State Hospital for thirty days, and at the end of that time to set him free, when there is no assurance that he is cured. The men should be studied in a rational way; they should not be discharged until they are cured.

In closing, Doctor Cooley said that each person could help in all of these movements if he would only join with the *social forces*. If the people of Cleveland only realized the necessity for this work, there would be no trouble to raise the money to carry it on to the accomplishment of wonderful results. We must, therefore, create public sentiment. We cannot work along the individualistic line, we must work together. When there is only an individual working here and there, much cannot be accomplished, their efforts are dissipated. But when these forces are joined to the social forces, conditions must improve and much good will be done.

Your Society (The Academy of Medicine) can be of tremendous force in helping to arouse public sympathy to the support, morally and financially, of this great work. Physicians should emphasize to the public that the ballot box is the place to express the highest social ideals. For the next few years the work will be largely educational. The efficiency of the Department of Health is an instance of what this city can do in all the various lines of social activity of which mention has been made. When disease appears the forces of 700,000 people are there to combat it. This same force will in the future back social centers, will give the helping hand to the immigrant, and will open up the way to every man and woman.

C. E. Ford, Cleveland's Commissioner of Health, in opening the discussion on this paper, said that he could add nothing to the splendid address given by Doctor Cooley. To the members of the Academy he announced that from now on all diphtheria cultures, turned in to the Health Office, for a negative report must be taken eight days from the

beginning of convalescence, instead of eight days from the first appearance of the symptoms.

W. C. Eddy, Dairy Food Examiner, said that one thing that Doctor Cooley had said strongly impressed him, and that was the power that the Academy of Medicine might be in this movement of public welfare. He thought the Academy should take advantage of this opportunity.

J. E. Tuckerman said that Doctor Cooley spoke rightly when he said that there was no place for the individualist in this movement, and that every force working for social betterment, in order to be effective, must be joined to the social forces. Certainly the Department of Health clearly shows that it requires the hearty co-operation of all in order to accomplish the best results. There is a question that every physician is called upon to answer, and that is, "what shall we advise the advanced tuberculosis patient to do?" He has probably made the rounds from physician to physician, and has become an asset to the man into whose hands he finally falls. Every case of tuberculosis is at its best when put into the proper environment, and in many cases this can be provided only by the city. The physician may sometimes hesitate to turn a case over to the city, even when he knows that the patient's best interests would thereby be served. It should be a principle that every time a public function is serving the same end as that served by the physician, and is serving that end to the better advantage of the patient, then certainly the physician should not object to the city taking the patient and doing what ought to be done.

L. K. Baker expressed approval of the Cooley Farm and said that he was glad to hear Doctor Cooley's concept of what ought to be done for the city. The one thing necessary to get is the money for these improvements. He had recently heard some talks upon taxation and it seemed that, if the present plans carried, there would be plenty of money for these enterprises within the next ten years. Cleveland is called the "Forest City," and this indeed with some truth, for there are over 2,000 acres of wooded park lands in her environs, and her streets and avenues are shaded by trees. But Doctor Cooley has an equal amount of territory where he is bringing people back to the normal plane of living. But he can only help a certain number, so the city should do what it can to broaden its streets and increase its park lands, and give the people an abundance of recreational life, and fresh air, and sunshine. He hoped within a few years Cleveland would become the "Garden City," giving more space along the streets and open areas here and there. He would like to have centers all over the city, such as we have on Euclid at 55th street and at 105th street.

J. M. Moore asked Doctor Cooley if the city had made any provision for the care of alcoholics, in such a way that they may be cured. In answer to this, Doctor Cooley said that the city sends these cases to the City Hospital. This frequently does no good, for the men will not stay until they are cured, and not being under commitment, the city cannot hold them if they wish to go. These persons should be put under commitment; that being the only way to deal with this problem. He added that he hoped that a special institution may be erected at Warrensville for the proper treatment of these cases.

F. C. Herrick thought the work of the physicians lay right along the lines of the social worker, and that it was the physician's duty to work for social betterment. Work in the dispensary is largely sociological, and showed some of the very needs of the people which were mentioned by Doctor Cooley. He expressed the hope that the Academy of Medicine would take an active part in the Public Welfare Department of the city government. This is a movement that is exciting interest everywhere, and only last week the Ohio Medical Society appointed a committee to look after the sociological side of the practice of medicine. It is a growing interest and the Academy should appoint a committee to take up this work—a Committee on Sociological Service.

A. W. Leuke expressed the opinion that the Welfare Movement had



grown too fast, and took on too much of the character of the fads of the day. It seemed to him that a good welfare worker had to be a good press agent, and for that reason the good of his work was largely judged by the number of columns he could furnish the newspaper. The Tuberculosis Hospital at Warrensville was, without doubt, a fine building, but the important thing to the patient was to make the treatment while there inviting, not to subject him to the whims of superintendents and nurses; give him appetizing food, but not make it a necessity that he eat this food alongside of those whose habits or race made them objectionable. We are brothers and sisters in the social sense, but at the same time we are human, and some conditions might be sufficiently objectionable to mitigate against the efficacy of any treatment. In fact, many people refuse to go to the Tuberculosis Hospital for just such reasons. As regards the sociological factor, Doctor Leuke expressed the fear that the city was in danger of paternalizing the great majority of the people, and that much of this work done for them would but make them less independent. He thought also that the welfare worker seldom got the point of view of medical ethics, and did not hesitate many times to recommend that patients disregard their physician's advice and go to Lakeside or Charity Hospitals for treatment. He thought the value to the community of the City Hospital remained to be demonstrated, as in its past unsettled state and recent upheaval there was too much evidence of politics and the power of political pull.

S. L. Bernstine expressed surprise to hear Doctor Cooley say that they were planning to open a Venereal Ward at the City Hospital, as a few years ago, when an interne in the hospital, such cases were refused admittance. He asked Doctor Cooley what was the possibility for a physician to treat his private cases in the Contagious Wards. Several times he had sent traveling men who were suffering with diphtheria over to the hospital, but he had never been allowed to treat them, although they were both able and willing to pay for medical services. The Denver Contagious Hospital has a rule that permits the physician to treat his own case. The physicians who are not members of the staff do not want to assert their rights on the wards, and it does seem that they should be permitted to treat their private cases in the contagious wards.

Doctor Cooley, in reply, said that the physicians of the staff made the ruling referred to. According to his understanding this rule was adopted for the reason that it was thought that the service on the wards would be complicated by the admission of private patients.

J. J. Thomas said he was on the staff when this rule was passed, and that he fought strongly against its passage. He had always thought that this rule was unjust to the physicians who were not on the staff.

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## CLINICAL AND PATHOLOGICAL SECTION

The ninety-eighth regular meeting of this Section was held Friday, January 9, 1914, at the Cleveland Medical Library. A. W. Lueke, in the chair.

### Presentation of cases.

J. J. Kurlander presented a case of fracture of the spine of the tibia. A boy, age 18, in jumping from a wagon gave his right knee a severe twist. He was removed to a hospital where an X-ray was taken. This showed no fracture. He remained in the hospital six days at the end of which time he was dismissed, his injury showing some improvement. He was first seen several days later. At this time he was in considerable pain; the knee was swollen, painful, and there was considerable fluid in the joint. A second X-ray showed a fracture of the spine of the tibia. The leg was put in a plaster cast at full extension, and the patient made an uneventful recovery. The X-ray plates were shown.

Case of a baby four months old that had swallowed a safety pin, the pin being "open." X-ray plates were exhibited showing the passage of the pin through the bowel. The pin was finally recovered in the stool.

F. E. Bunts, in opening the discussion said, that the fracture case presented was rather a rare one.

F. C. Herrick said that a year ago he had seen a young man, who, ten years previously, had had a knee injury since which time he had had only partial use of the quadriceps. There had been a separation at the crest of the tibia, and the X-ray showed that a fibrous union had taken place.

He had recently had a case in which a fleshy man had caught his heel upon a stair and had torn the quadriceps tendon.

F. E. Bunts presented two specimens.

The first was from a case of obstruction of the pylorus. The patient was a young man who, about a year ago, had vomited blood and passed blood in the stool. Obstruction was indicated in the fact that the stomach would not empty, and vomiting occurred after eating. An operation revealed that the pylorus was completely surrounded by an ulcer and its lumen was practically occluded. A resection of the pylorus and a gastro-enterostomy was done.

C. F. Hoover asked the question whether any ulceration could be detected in the serosa of the stomach.

In answer to this question Doctor Bunts replied that none could be seen, but that the serosa was very thick. There is a possibility of the ulcer being syphilitic, but this was not thought of before operation. The X-ray clearly showed an obstruction and this led to a diagnosis of carcinoma. It was not, however, a carcinoma, but a soft structure that had a distinct ulcerated edge.

The second specimen presented was from a case of hydronephrosis. Mention was made of the points of diagnosis. In three cases encountered during the past year the following signs were elicited: A tumor mass on the right side, easily palpated in front, and which fluctuated from behind forward. The lower pole of the kidney could be easily felt. There was no evidence of the colon lying over the mass, which moved up and down with the respirations. Its juxtaposition to the liver made one think of the possibility of a hydrops of the gall bladder, and indeed it may happen that this cannot be excluded until operation. In one case the woman had a floating kidney and this fact made it quite certain that she had a hydronephrosis. The question arises as to whether or not one should remove such a kidney, or do a plastic operation? When we consider that the mortality is much better in a primary nephrectomy than it is in cases where this is done after a plastic operation, and since these cases are quite likely to recur, and especially when the mass is a large one, it is perhaps better to remove them.

R. K. Updegraff in discussion told of a case of a girl who had a movable kidney and who had recurring attacks of pain at which times the kidney was larger than at other times. This pain was relieved by the patient elevating the pelvis. A diagnosis of hydronephrosis was made, and upon operation the gall-bladder was found to be full of stones.

F. W. Hitchings presented a case with specimen. A young woman, age 21, was seized with a chill and vomiting and intense abdominal pain, 24 hours after having four teeth extracted. She gave a history of having had a peculiar skin eruption, which she called the "Cuban Itch," several years ago. Upon the advice of a friend she had taken a considerable quantity of bird shot for the relief of this malady. Her gums showed evidences of lead poisoning. A year ago she was admitted to a hospital with what was diagnosed as peritonitis, but her condition was too serious to admit of operation. However she made a complete recovery. Recently she had been feeling badly and had taken some more lead shot, this time, however, of a larger size. She said that she had watched for and recovered all that she had recently taken, in her stool. At the time of operation her temperature was 99, and her pulse 100. She had pain and tenderness over the gall bladder and appendix. It was



thought that we might find shot in the appendix and upon operation eight shot were found sealed in the appendix.

Doctor Bunts in opening the discussion asked if this "Cuban Itch" was of the nature of Ivy Poisoning? He said that he had found bird shot in several appendixes operated upon, but in these cases their presence was due to the eating of quail.

In the replies which followed it developed that "Cuban Itch" was a variety of smallpox.

The following program of papers was presented:

**1. The Treatment of Carcinoma of the Female Genitals by Mesothorium.** By J. J. Thomas.

On account of the great interest aroused by the results of the treatment of carcinoma of the female genitals by the radioactive mesothorium, and because of its practical importance in the fight against one of the most terrible diseases which afflicts mankind, it is worth while to consider the views and experiences of German clinicians. The method aroused by far the most interest at the Gynecological Congress at Halle last spring, and Wertheim is said to have made the statement that the mesothorium treatment would take the place of the radical operation devised by himself.

Bumm and Voights, in an article in the *Münchener Medicinische Wochenschrift*, Aug. 5, 1913, said that whereas, by the old methods only half results were obtained, now by the recent methods it seems possible to cure carcinoma of all kinds providing that they can be well exposed to the rays. Carcinoma of the female genital tract offer especially favorable objects for the study of the action of iridication, because they show the most diverse and malignant forms, and because they are easy of access, and furnish an easy and harmless control through the eye. It is important for good results that the affected parts be well exposed to the rays, and to this end the speculum must be skillfully used; when necessary they do not hesitate to dilate the parts even by incision.

Tables are given showing the details of treatment of 13 cases of carcinoma of the cervix and 4 carcinoma of the vulva and vagina, including the length of treatment of each case. All patients appear to be cured clinically, i. e., they exhibit complete scar formation locally, and no trace of carcinoma tissue microscopically. As no case is over six months old it remains to be seen whether these "cures" are permanent. The authors admit that the most important question to be solved is as to the far reaching actions of the rays, and as to the effect upon distant metastases.

(Doctor Thomas's paper appears in full elsewhere in this issue.)

C. F. Hoover in discussion, said that he had seen two cases of leukoplakia cured by means of radium.

J. J. Kurlander asked if mesothorium was itself radio-active, or if it had to be activated by means of the X-ray?

J. J. Thomas, in closing, said that mesothorium is a radio-active substance; that it contained 25 per cent of radium; it could be used alone but that in general practice the combined effects of radium, mesothorium, and the X-ray were got by the use of all three.

**2. Diaphragmatic-pleurisy, with Report of Cases.** By Richard Dexter, M. D.

The phrenic nerve supplies both the pleural and peritoneal covering of the diaphragm, except for a narrow rim about the edge of the diaphragm which is supplied by branches from the 6th to 12th intercostals, the sympathetic and the vagus nerves. Pain referred to the neck or the abdomen in inflammation of the diaphragmatic pleura has been frequently noted. The abdominal pain occurring early in cases of pneumonia at the bases of the lungs has been considered to be due to an accompanying inflammation of the diaphragmatic pleura.

Capps, in 1911, found that pressure over the diaphragm caused pain in regions remote from the point of irritation. These painful areas bore a constant relation to the portion of the diaphragm on which pressure was exerted. When the outer portion was pressed upon there resulted a sensation of pain in the abdomen in the flank or in the lower thorax. When the central portion of the diaphragm was irritated there was pain in the shoulder, or along the ridge of the trapezius muscle. These painful areas were frequently associated with hyperesthesia or hyperalgesia of the skin, and with tenderness upon pressure over these points.

Two cases have been observed which illustrate this pain distribution so well that they are worthy of mention.

In the first case, the onset and the early course of the condition strongly suggested an acute abdominal process. The development of uncontrollable hiccough pointed to irritation of the diaphragm, but at first the presumption was that the inflammation was below, rather than above it, especially in the absence of any signs of lung involvement. The appearance of pain and tenderness over the trapezius, and the disappearance of the abdominal pain, suggested an irritation of the upper surface of the diaphragm, and with it appeared a similar, though not so well marked chain of symptoms upon the right side, accompanied by a friction rub. It is interesting that in this case there was at no time any signs even remotely suggesting the existence of a pulmonary infiltration.

In the second case there was what was evidently an infiltration of the lower lobe of the right lung. In the presence of abdominal pain, tenderness, and skin hyperesthesia, as well as pain and tenderness in the region of the trapezius muscle, it is reasonable to suppose that there was an inflammation of the diaphragmatic pleura.

If the inflammation is in the center of the diaphragm we may expect the pain to be referred to the region of the neck, while if the outer edge of the diaphragm is irritated the pain will be referred along the dorsal segments to the abdomen.

(Doctor Dexter's paper appears in full elsewhere in this issue.)

C. F. Hoover in opening the discussion, said that referred pains to the abdomen are interesting and give the physician a great deal of diagnostic trouble. Many a man has had intense abdominal pain, bloody stool, and other symptoms indicating a grave abdominal condition, when the whole trouble was a pneumococcus inflammation of the diaphragm. Pericarditis also frequently gives a referred pain in the abdomen. De Mussey long ago recognized the possibility of this and fully described these pains. De Mussey's Button has been fully described in the French text books, but does not appear in the English works.

M. J. Lichty said that he had recently had a case of ulcer of the stomach, in which case there was adhesions between the stomach and the diaphragm, and pain referred to the left side of the neck.

Richard Dexter in closing said, that De Mussey's Button was not present in his cases. The pain was general in the upper abdomen and at no point more tender than at another.

**3. The Treatment of Regional Arterial Hypertonus in Cardio-vascular and Renal Disease.** By C. F. Hoover.

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## EXPERIMENTAL MEDICINE SECTION

The seventy-second regular meeting of this section was held Friday, January 16, 1914, at the Cleveland Medical Library, with Chairman David Marine in the chair.

The following program was presented:

**1. A Human Embryo of the Second Week (2 mm.)** By N. W. Ingalls.

The young ovum in question came into the hands of the speaker from Doctor Peterka. Its chief interest is due to its early age and to a cor-



respondingly early stage of development, and further to certain data which enable one to form an estimate of the probable age. It is on this last point, i. e., the age of a given embryo, particularly in the first few weeks, that human embryology is still very much in the dark and this state of uncertainty will continue until a greater number of specimens accompanied by accurate and detailed history of each case can be obtained.

As received, the specimen, which consisted of the intact chorionic vesicle, measured 9x8x6 mm., about the dimensions of a fair sized pea. Its entire surface was thickly set with villi of varying size and shape, their average length being about 1 mm., but obscured over considerable areas by the adherent blood. The cavity of the vesicle measured approximately 2 mm. less in its various dimensions and into it projected from one side the embryonic structure, embryo and yolk sack. At this period of development the yolk sack is relatively very large, appearing as a thin walled, elongated vesicle, measuring 2.5x2x1.7 mm., upon whose upper surface there rests the embryo proper, considerably smaller, flattened and covered up by the amnion as by a watch crystal. The embryo itself, or embryonic shield since it is flattened out on the upper surface of the yolk sack, measures .7 mm., in breadth, by rather less than 2 mm. in length and is roughly spindle shaped as seen from above. Lying in the long axis of the embryo are found two early structures; the primitive streak, from which in large part the mesoderm of the embryo is derived, occupying the caudal half of the blastoderm, and running forward from its anterior extremity for a short distance the chordal canal and head process. The chordal canal begins with the dorsal opening in the ectoderm and the anterior end of the primitive streak and appears as a very fine canal .3 mm. in length which insinuates itself between the ectoderm and entoderm but fused with the latter. With the disappearance of the floor of the canal, the ventral opening is gradually shifted backward until it lies opposite the dorsal opening and the very much shortened canal then becomes the neurenteric canal. At the posterior end of the primitive streak lies the cloacal membrane, where ectoderm and entoderm are in contact, i. e., not separated by mesoderm. In the region of the posterior end of the embryo and yolksack is the attachment of both by the body stalk to the inner surface of the chorion; into this support grows the allantoic duct from the yolksack and here is set up later the vascular connection between the embryo and the developing placenta.

The history of the case is as follows: April 2, Intercourse, possibly two weeks before. April 8, period expected (regular 24-26 days); April 14, bleeding commenced, increased. April 17, ovum thrown off.

Time elapsed between expulsion of ovum and (a) beginning of last period 34 days; (b) beginning of omitted period 9 days; (c) last intercourse 15 days; (d) intercourse 2 weeks previous, 29 days. If we deduct 1-2 days for the abortion, during which the embryo would not continue to develop, the common rule would give an age of 7-8 days, which is quite impossible. By allowing one day between insemination and fertilization in addition, the age computed from the last intercourse would be 12-13 days, which result is quite in accord with the findings in similar cases. It may be that this estimate of age is rather low, it is doubtless the lowest figure we can accept, either from the history or from the stage of development; but there is on the other hand nothing in the history that would enable us to do more than speculate as to what the upper limit of the age would be. Taking the age as 13 days and regarding the menstrual month as of 25 days, and allowing 7 days between fertilization and implantation in the uterine mucosa, during which time the segmenting and developing ovum is traversing the tube, the result in this case would be that fertilization occurred on the 22nd day of one menstrual month and implantation on the third day of the next menstrual month.

**2. The Supports of the Rectum Considered in Relation to Prolapse.** By T. W. Todd, F.R.C.S.

In a previous paper (*The Anatomy of a Case of Carcinoma Recti. Annals of Surgery*, 1913, Vol. 59, pp. 831-837), the speaker indicated the clinical significance of the following structures:

1. The function of the fascia propria of Waldeyer (recto-sacral aponeurosis of J. W. Smith) in making the rectum a self-contained organ.
2. The function of the lateral ligaments (les ailerons) as supports of the rectum.

3. The fact that the lateral ligaments are mainly formed by the perineural tissue around the sacral nerves supplying the rectum, but also include the perivascular tissue around the middle haemorrhoidal vessels.

In the present communication the speaker first postulated that only the type of rectal prolapse which commences at the anal margin should be retained under the heading of "prolapse"; the other varieties being in reality types of intussusception.

After a consideration of the various factors suggested clinically as causes of prolapse in infants evidence was brought forward in support of the following contentions:

1. That the relative proportionate length and extensibility of the lateral ligaments in the infant at birth are approximately the same as in the adult.

2. That there is no "laxity" of the lateral ligaments.

3. But that the rectum is already a pelvic organ at birth while the bladder and uterus lie at a higher level.

4. That in consequence of the relative low position of the rectum and of the fact that it is not shielded by an overhanging sacral promontory, the organ is in a position of greater mechanical disadvantage in infancy than in adult life.

5. Hence in infants if the pelvic diaphragm be weak, as in rachitis, there is every possibility of the occurrence of a temporary and limited procidentia of the rectum which does not require any operative measure for its treatment.

E. O. Houck, in discussion raised the question whether the fascia propria of Waldeyer does not serve rather as a mesentery of the rectum. The argument relative to the fibrous tissue supports of the rectum is held by some authorities to rest on insecure grounds. The same principle holds in the pelvis as well as in the abdomen, the viscus with supports being less liable to prolapse. None of the pelvic viscera are supported from above, according to some writers, their supports being rather in the nature of mesenteries. In the genuine prolapse of the rectum found in infants, this may be due to weakening of the posterior plateau of the levator ani, which in turn may be due to interference with its nerve supply. This posterior plateau of the levator ani is also important in the support of the uterus. There is no such thing as intra abdominal pressure.

T. W. Todd, in reply, admitted that in rickets, where prolapse occurs in infants, there is weakness of the levator ani. This normally exercises a tonic tone over the position of the ampulla of the rectum and if the nerve supply is injured the support may be weakened. In the abdomen, when the patient vomits the mesentery contracts, due in part at least to the contraction of the muscular fibers which it contains. The muscle of Treitz is functional in the young, fibrous in the old. The same is true in a way of other mesenteries.

### 3. The Relation of the Accessory Nerve to the Vagus Complex.

By D. Davidson Black.

The following observations were made from a series of transverse sections through the medulla and upper three cervical segments of a new-born babe, prepared by the pyridine Cajal method of Ransom. This series represents a part of the material prepared in the course of a study of the calamus region which is as yet incomplete. However, certain facts bearing upon the relations of the so-called "bulbar portion" of the nervus accessorius have been noted. These are of interest when contrasted with



the usual description of the origin and relations of this structure obtaining in current texts.

The origin or the spinal portion of N. XI has been definitely established, and can be made out quite well in this series. The nucleus occupies a central and somewhat lateral position in the anterior horn in the cord, and extends upwards into the medulla to about the level of the lower third of the pyramidal decussation. The cells are of typical somatic type, and the emergent fibers pass to the periphery in the well known geniculate manner, so that in no transverse section is the whole course of these fibers displayed.

The ventro-mesial, cell group of the anterior horn may be traced as a practically uninterrupted column into the hypoglossal nucleus.

Laterally the cells of the anterior horn become scattered, and lose their characteristic grouping when traced into the formatio reticularis of the medulla.

There is a very apparent interval between the cephalic extremity of the cervical accessory nucleus and the caudal end of the ambiguous cell group.

The dorsal nucleus of the vagus may be traced as a very distinct cell column almost to the lower end of the pyramidal decussation. In other words, this nucleus overlaps that of the accessory nerve in the lower medulla.

There is thus a space between the cephalic extremity of the nucleus of the accessory nerve in the cord and the lower end of the cell group usually described as giving rise to its bulbar fibers, viz., the nucleus ambiguus.

In the interval in the series described there are numerous fibers to be seen taking their origin direct in the dorsal nucleus of the vagus, and passing to the periphery ventral to the substantia gelatinosa Rolandi. In their emergent course these fibers are curved laterally and caudally so that in a transverse section their whole extent is not seen. These fibers presumably make up the caudal portion of what is usually described as the bulbar part of N. XI.

At a higher level, where the nucleus ambiguus becomes definitely recognizable, fibers arising from this source take the well known indirect course to the periphery, joining on their way fibers from the dorsal vagal nucleus, and passing ventral to the substantia gelatinosa Rolandi. This last point is the only one in which these fibers differ from those usually described as giving rise to the vagus proper.

#### Conclusions:

1. There is no morphological ground for the consideration of the bulbar XI apart from the vagus in the specimen I have studied—its nucleus of origin is but the caudal prolongation of the dorsal vagal nucleus.

2. That Kolliker's distinction between the emergent fibers of the bulbar XI and those of IX and X, based on the observations that those of the former pass out ventral, while the latter pass through or dorsal to the substantia gelatinosa Rolandi, is without significance.

3. The extent of the vagal and accessory nuclei corresponds practically to Kappers' findings in *Didelphys*.

In view of the recent investigations of Van Gehuchten, Molhant, Ransom, Kappers, Malone and others, together with the above observations, would it not be better to consider this structure as part of the vagus proper and restrict the term *nervus accessorius* to the present spinal portion of this nerve?

4. **Observations on the Clinical Anatomy of the Human Gullet.**  
By T. W. Todd, F. R., C. S.

Evidence was first cited to show that structurally the oesophagus differs in different animals, having a muscular coat composed entirely of striated fibres in the dog and the rabbit, whereas in the cat, in the monkey and in man, only the proximal position of the muscular coat is

striated. In the latter animals the distal portion of the oesophagus presents only smooth musculature. In man this subdivision of the oesophagus into proximal (or upper) and distal (or lower) portions occurs in the neighborhood of the crossing of the left bronchus. The functional contraction of the upper gullet is dependent on the integrity of the extrinsic nerves, which are not medullated and therefore do not function at the commencement of extra-uterine life. In the lower gullet, as in the stomach, autonomous peristalsis can take place. Hence (1) there is not absolute necessity to preserve the vagi in resection of the gullet; (2) the upper gullet is not yet functioning in the child at birth. The contraction of the diaphragm of the mouth is powerful enough, however, in the infant to propel fluids into the lower gullet, which is already capable of autonomous peristalsis.

The next point to which attention was drawn was the direct and close relation of the lower gullet to the left atrium of the heart, whereby distension of the lower gullet (especially by gas in air swallows) may interfere with the heart's action directly and reflexly quite as much as may similar distension of the magenblase of the stomach. In consequence of the diminuation of the posterior mediastinum in which the lower gullet lies, following the encroachment on it by the heart when the patient lies on his back, mechanical interference with the circulation through the heart is more liable to occur in this position if the gullet be distended.

The third observation brought forward concerned the so-called phrenic ampulla. No evidence could be obtained to indicate that this lowest position of the gullet above the diaphragm acts as a Vormagen in Strecker's sense of the term. No evidence could be shown by the fluoroscope that any such definite subdivision of the lower gullet exists in normal individuals during life. The speaker believes that the formation so described by Strecker and Cunningham is variable in occurrence and extent, and is due to a postmortem contraction in the circular muscular coat of the lower gullet, such as may be found in the circular coat of the stomach in subjects embalmed with a percentage of formalin.

### COUNCIL MEETINGS

At a meeting of the Council of the Academy of Medicine, held Wednesday, Jan. 7, 1914, at the Bismarck, the following members were present: President, J. J. Thomas, in the chair; Doctors Marine, May, E. M. Skeel, Houck, Updegraff, Lueke, and J. E. Tuckerman.

The minutes of the last meeting were read and approved.

Upon the suggestion of R. E. Skeel, the Chairman appointed a committee, consisting of R. E. Skeel and the Secretary, J. E. Tuckerman, to look up the feasibility of a physicians' telephone exchange under the auspices of the Academy, similar to those conducted in San Francisco and Los Angeles, by the county societies there.

On motion, the following applicants were elected to membership: Active—George B. Tupper, Samuel Quittner; Associate—Veterinary—N. D. Backus, A. N. Shifrin, W. H. Turner.

The name of Jacob Hyman, applicant for active membership, was ordered published.

On motion, Bernard Lovenberg was reinstated as an active member of the Academy.

The resignation of E. B. Brown, University of Minnesota, was accepted.

On motion, the Secretary was empowered to expend not exceeding \$5.00 per month for reporting the meetings of the Academy.

A communication from the Cleveland Commission for Public Recreation was laid on the table.

On motion, the following members of the Standing Committee were appointed: C. E. Ford, Legislative Committee; R. G. Perkins, Committee



on Public Health; A. S. Storey, Civic Committee; F. T. Kopfstein, Membership Committee; W. C. Stoner, Program Committee.

Doctors R. R. Powell, J. J. Thomas, S. W. Kelley and H. J. Gerstenberger were re-appointed as members of the Milk Commission.

On motion, the Secretary was directed to call the regular meeting of the Council of the Academy upon the second Wednesday of the month at 11:30 A. M.

## BOOK REVIEWS

**The Unexpurgated Case Against Woman Suffrage.** By Sir Almroth E. Wright, M.D., F.R.S. Price \$1.00 net. Paul B. Hoeber, New York, 1913.

"In England everything is different." So says Sir Almroth E. Wright, prominent English scientist and physician, in his book entitled *The Unexpurgated Case Against Woman Suffrage*, and to this much of his writing we may heartily agree.

Whether for or against Woman Suffrage, with any American sense of humor it is difficult to take many of Doctor Wright's statements seriously because of the smug manner in which he offers arguments first as those of the Woman Suffrage Party, they being thoroughly inoculated with his own point of view that of the Anti, and then follows these with what he is pleased to call the unexpurgated arguments against woman suffrage.

He starts off in his preface with some rather naive generalizations, most of which cannot be quoted in a review of this length. But the few that follow indicate the general trend and tone of the whole argument: "The influence of women has caused man to leave unsaid many things which he ought to have said." "She has placed her taboo upon all generalizations about women, woman has further stifled discussion by placing her taboo upon anything seriously unflattering being said about her in public." "I would suggest and would propose here, myself, to act upon the suggestion, that in connection with the discussion of woman suffrage, these restrictions should be laid aside. And when I venture to attempt a generalization about woman, I endeavor to recall to mind without distinction all the different women I have encountered, and to extricate from my impressions what was common to all, omitting from consideration (except only when I am dealing specifically with these) all plainly abnormal women."

Then the author says, "The majority of the women who claim the suffrage do not do so from public interest or philanthropy. They are influenced almost exclusively by two motives: resentment at the suggestion that woman should be accounted by man as inherently his inferior in certain important respects; and reprehension of a state of society in which more money, more personal liberty, more power, more public recognition and happier physiological conditions fall to the share of man." Whatever the moral or intellectual status of woman suffrage, or the possible real need for it, the author shows little respect for it as expressed in the statement: "A cause which derives its driving force so little from philanthropy and public interest and so much from offended *amour propre* and *pretensions* which are, as we shall see, unjustified, has in reality no *moral* prestige. For its *intellectual* prestige the movement depends entirely on the fact that it has the advocacy of a certain number of distinguished *men*." (The italics are not the author's.)

Then Doctor Wright passes on to deal with the arguments by which the woman suffragist has sought to establish her case, under these headings: "Under the Terms Woman's Rights, Argument from Justice, Juridical Justice, Egalitarian Equity, Justice Applied to Taxation, Liberty, Elementary Natural Rights, Intellectual Grievances of Women." These subjects are all quickly presented and disposed of in a way obviously satisfactory to the author if not the reader. It is entirely conceivable that exception might be taken to such statements as, "The Woman Suff-

fragist is merely bluffing. Her formula Woman's Rights means simply Woman's Claims. Immeasurably the larger number (women) are in a solvent position only because men have placed them there. Her notion of chivalry is that man should accept every disadvantageous offer which may be made to him by woman. And so we find the women who want to have everything for nothing, and the wives who do not see that they are beholden to man for anything, and those who consider that they have not made a sufficiently good bargain for themselves, in short, all the ungrateful women flock to the banner of Women's Freedom, the banner of financial freedom for women at the expense of financial servitude for man. The grateful woman will practically always be an anti-suffragist. The failure to recognize that man is the master, and why he is the master, lies at the root of the suffrage movement."

Imagine the bias of any author, offering these statements as the arguments of Suffragists. It seemed likely that from a scientist and physician we would at least get the fundamentals of this argument. But no, we are offered the same pap we have been fed upon so long, the fallacies big and little of the conventional idea of the relation of men and women to each other. It is all a reiteration of the "menace of the restless woman," and "that only in motherhood is woman able to win her own center of quiet and man's belief." A man may be a father and enjoy the distinction of a career at the same time. Men as a class are not so impregnated with parental instincts that we expect their whole lives given over to fatherly deeds. What disgrace should attach to women who perhaps aim to be mothers plus some line of work or diversion which suits the taste? Why take it for granted that women are such lovers of quiet or that man's belief in woman is any more necessary to her quietude than woman's belief in man? "Why," as some ardent suffragist has said, "must women always be consigned to that haven of stuffy, becalmed, 'home and religion' environment where their oldtime pilot and master has told them to head in?"

It is this same futile method of argument by the English Government that has impelled Emmaline Pankhurst and her militant followers to give years of work that they might get behind the scenes of government institutions of various sorts to secure a first hand proof of the misery and unhappiness of a man made world and to acquire the wisdom to know how to wring concessions from the English Government. There is no space in this review to give to that large assemblage of facts that so well prove the need of Woman Suffrage in England. The English Government, which pays the men of the Woolrich Arsenal trade-union wages, is one of the worst exploiters of women (who do not have the right to vote) for in the Army Clothing Works the government employs women either directly or indirectly (as home workers through sweaters) working twenty hours a day for three shillings (seventy-five cents) a week. There are 900,000 women engaged in manufacturing ready-made clothing at the most wretchedly low wages. Women giving their services as governesses, companions, so-called educated labor, often receive but five shillings a week. All these facts and many more are concisely stated and well assembled in "A Historical Survey of the Modern Woman's Rights Movement," by Doctor Kaethe Shirmacher. The reader can here find a dependable statement of facts concerning Suffrage for Women in all countries, England included.

These conditions in England are an evidence of how much more difficult it is for the woman's rights movement to make progress in old countries than in new. Traditions are deeply rooted, customs are firmly established, the whole weight of the past is blocking the wheels of progress. In countries with older civilization the woman's question is entirely a question of force.

How did the agricultural laborers win the franchise in England? They won it by burning hay-racks, rioting and otherwise demonstrating their strength in the only way English politicians can understand. The threat to march 100,000 men to the House of Commons unless the bill



was passed played its part also in securing the agricultural laborer his political freedom.

It is, indeed, superficial to define the militant movement in England as the woman movement, as it is equally superficial to define the Woman Movement of the World, as a political movement or a marriage reform movement, or a divorce movement, or an economic, or sex, or moral or unmoral movement. In the words of Edna Kenton, who has contributed the most recent classic on Feminism, "The militant women, so-called, have sprung up in England as nowhere else in the world. But whoever holds the English militants to be a spontaneous variation from the normal does not know human history or his age. To disassociate the militant women from the women of the rest of the world is not possible. They are only a highly significant part of the general unrest that is burrowing beneath old codes, undermining old values and ideals and tossing them into unsteady mountains of moldy rubbish. First of all, the men and women who do not know the degraded status of women before the English Courts are set apart in their ignorance from the right to condemn the women of England who are steadily executing a campaign of planned political violence. For this is true, that the roster of those laws is enough to make any intelligent woman who comes into conflict with them go down to the Women's Union and offer her services on the bare chance that action will help.

"Militancy is not yet a cause, it is an effect. Militancy is not a disease, it is a symptom. To dismiss the English militants or women actionists anywhere as hysterics and pathological specimens as the notable physicians called to the aid of the English Government have named and dismissed them is to beg the question. Any doctor who shows the door to a patient he has diagnosed as hysterical, without seeking the cause of her hysteria to remove it, does not earn his fee, and if he recommends merely sedatives and close confinement, his license should be withdrawn."

The half million, excess, female population in England, the author describes as "England's superfluous women" and the "recruiting field for the militant suffragists" and after a presumably deep research into their psychology all he has to offer is the suggestion that "they had better, long ago, have gone out to mate with their complement of men, beyond the seas." These are the women who are described by Miss Kenton as mostly of the deadly middle class, denied marriage, since their circle, limited at best, may not be overstepped; denied their children; forbidden economic independence; refused any individual life of their own; dependent upon the male head of the house, and subordinate to his will. Perhaps it would be fair to let them say, what their lives are and to what extent their group forms the recruiting ground from which doctor's offices are filled.

The author takes an easy way out in disposing of this question, but it could hardly be called scientific. There is no place for contempt or ridicule in the proper treatment of this problem, and the whole situation is likely to take on a very different appearance with the passing of the years.

Samuel Merwin, the novelist, reminds us, how this whole movement may look some years hence after the heat of conflict has subsided by the recollection of other acts of rebellion. He says, "Somehow it is a long time since people have laughed very wildly at Martin Luther even though he did flaunt the authority and majesty of the temporal and spiritual power of his time. Nor do we laugh at Savonarola. Not at poor, misguided, tragic, old John Brown. Nor at Washington and his property destroying crew. Nor at Carl Schurz and his fellow revolutionists in Germany. Nor even at the ridiculous Wat Tyler. Indeed, in our lucid moments away from the heat and dust of conflict, we have a curious habit of doing reverence to the great rebels of the past. Soberly each of us knows that whatever we enjoy today of liberty and equality and the right to live has been won for us by rebels. If ever-

widening classes of human beings had not protested, and fought to make their protests good, civilization would not be what it is." And it is well for us to remember, as Americans, that our own nation was founded on the theory that the right to revolt is an inherent right.

Of the Feminist movement, so-called Suffrage is a tiny part, and of Suffrage, Militancy is perhaps likely to be a merely English detail. But Spiritual Militancy in women is the "ringing, singing, note of the world today." What lies back of it and what lies ahead of it may not wisely be ignored.

So the reviewer cannot agree with Sir Almroth Wright that peace is ever likely to return again upon the conditions he names, and after reading his book, comes away with the opinion that the author is suffering from nothing less than "contagious misunderstanding." R. F. S.

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**Stammering and Cognate Defects of Speech.** By C. S. Bluemel. Two volumes. Price, \$5.00 net. G. E. Stechert and Company, New York, London, Leipzig and Paris, 1913.

In a conversation had with the author during the past summer, his point of view in writing these volumes was made quite plain. Said Doctor Bluemel: "My object in writing the book was to warn the stammering public and physicians (who are so often called upon to suggest a speech specialist, from a pedagogical standpoint, for speech defectives) against the Stammering Schools and Institutes, where stammerers are herded together in classes and come in contact only with all the varying forms and degrees of speech defects. This environment is pernicious and depressing and must be avoided. It is impossible to establish new and correct habits of speech surrounded constantly by such helpless imperfections in associates.

In Stammering Schools principles of perfect speech are not taught. Nothing but tricks are presented, such as repeating phrases in a jerky, singsong, disconnected, monotone, to the swinging of the arms with dumbbells. All this method is so wrong that I left the Lewis School in Detroit, having received no benefit, determined to expose such fraud and present to the general public a comparative history of all "guaranteed to cure" systems in Europe and America."

Dr. Bluemel has succeeded in these laudable aims and rendered good service to other sufferers thereby. He has established clearly that the treatment of speech defects is as individualistic as dentistry. Each case is totally different from all others and causes must be analyzed and treated according to its needs.

The author is not a speech specialist and makes no claims as such. His message, purely one of warning to the stammering public, is timely and valuable, and will be a powerful factor in depriving the so-called stammering schools of their hitherto large patronage and financial prosperity. B. C.

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### ACKNOWLEDGEMENTS

A Textbook of the Practice of Medicine. By James M. Anders, M. D., Ph. D., LL. D., Professor of Medicine and Clinical Medicine, Medico-Chirurgical College, Philadelphia. Eleventh Edition Thoroughly Revised. Octavo of 1335 pages, fully illustrated. Philadelphia and London. W. B. Saunders Company, 1913. Cloth, \$5.50 net; Half Morocco, \$7.00 net.

Materia Medica, Pharmacology, Therapeutics and Prescription Writing. For Students and Practitioners. By Walter A. Bastedo, Ph. G., M. D., Associate in Pharmacology and Therapeutics at Columbia University. Octavo of 602 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1913. Cloth, \$3.50 net.

History of Medicine, with Medical Chronology, Bibliographic Data, and Test Questions. By Fielding H. Garrison, A. B., M. D., Principal



Assistant Librarian, Surgeon General's Office, Washington, D. C., Editor of the *Index Medicus*. Octavo of 763 pages, many portraits. W. B. Saunders Company, Philadelphia and London, 1913. Cloth, \$6.00, net; Half Morocco, \$7.50 net.

A Textbook of Physiology for Medical Students and Physicians. By William H. Howell, Ph. D., M. D., Professor of Physiology, Johns Hopkins University, Baltimore. Fifth Edition Thoroughly Revised. Octavo of 1020 pages, fully illustrated. Philadelphia and London. W. B. Saunders Company, 1913. Cloth, \$4.00 net; Half Morocco, \$5.50 net.

Principles of Surgery. By W. A. Bryan, A. M., M. D., Professor of Surgery and Clinical Surgery at Vanderbilt University, Nashville, Tenn. Octavo of 677 pages with 224 original illustrations. Philadelphia and London. W. B. Saunders Company, 1913. Cloth, \$4.00 net.

Anatomy and Physiology—A Text-Book for Nurses. By John Forsyth Little, M. D., Assistant Demonstrator of Anatomy, Jefferson Medical College, Philadelphia. 12 mo., 483 pages, with 149 engravings and 4 plates. Cloth, \$1.75 net. *The Nurses' Text-Book Series*. Lea and Febiger, publishers, Philadelphia and New York, 1914.

The Practical Medicine Series—Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Volume IX. Skin and Venereal Diseases, Miscellaneous Topics. Edited by W. L. Baum, M. D., and Harold N. Moyer, M. D. Series 1913. The Year Book Publishers, Chicago.

The Practical Medicine Series, Volume X. Series 1913. Nervous and Mental Diseases. Edited by Hugh T. Patrick, M. D., Professor of Neurology in the Chicago Polyclinic, Clinical Professor of Nervous Diseases in the Northwestern University Medical School; Ex-president Chicago Neurological Society and Peter Bassoe, M. D., Assistant Professor of Nervous and Mental Diseases Rush Medical College. The Year Book Publishers, Chicago.

Epidemiologic Studies of Acute Anterior Poliomyelitis. I—Poliomyelitis in Iowa, 1910. II—Poliomyelitis in Cincinnati, Ohio, 1911. III—Poliomyelitis in Buffalo and Batavia, New York, 1912. By Wade H. Frost. Bulletin No. 90—Hygienic Laboratory, October, 1913. United States Public Health Service, Government Printing Office, Washington.

Proceedings of the Canal Zone Medical Association, Isthmian Canal Commission. For the Half Year, April to September, 1912. Volume V, Part I. Quartermaster's Department, Mount Hope, Canal Zone.

E. Merck's Annual Report: Of Recent Advances in Pharmaceutical Chemistry and Therapeutics. Volume XXVI. 1912. E. Merck, Chemical Works, Darmstadt, 1913.

Annual Report of The United Fruit Company, Medical Department, 1912 and 1913.

Proceedings of the Seventh Annual Meeting of the Association of Life Insurance Presidents. Including Report of Health Committee of the Association, New York, 1913.

Linking the Life Insurance Companies to the Public Health Movement. By Eugene Lyman Fisk, M. D., Medical Director, Postal Life Insurance Company, New York. Reprint.

The Correlation, Unification, or Synthesis of Chemotherapy and Psychotherapy. By Henry S. Munro, Omaha, Neb. Reprint.

The Great Danger of Incomplete Operations for Cancer in the Early Stage of the Disease. By Joseph C. Bloodgood, M. D., Baltimore, Md. Reprint.

The Added Responsibility of the Surgeon When Called on to Treat Surgical Lesions in Their Earlier Stages. By Joseph C. Bloodgood, M. D., Baltimore, Md. Reprint.

**Surgery of the Ileocecal Valve.** A Method of Repairing an Incompetent Ileocecal Valve and a Method of Constructing an Artificial Ileocolic Valve. By J. H. Kellogg, M.D., LL.D., Battle Creek, Mich. Reprint.

**Incompetency of the Ileocecal Valve—Disorders Arising From This Condition and Their Treatment.** By John H. Kellogg, M.D., Battle Creek, Mich. Reprint.

**X-Ray Studies of the Ileocecal Region and the Appendix.** By James T. Case, M.D., Battle Creek, Mich. Reprint.

**The Serological Tests in Cerebral Hemiplegia.** By Charles L. Dana, M.D., New York. Reprint.

**Mental Tests.** By Charles L. Dana, M.D., Professor of Nervous Diseases, Cornell University Medical College. Reprint.

**Remarks on Chronic Intestinal Stasis. With Reference to Conditions Found at Operation and the Mortality.** By William Seaman Bainbridge, A.M., Sc.D., M.D., Professor of Surgery. New York Polyclinic Medical School and Hospital; Surgeon, New York Skin and Cancer Hospital. Reprint.

**The Sale of Bichloride Tablets.** A Discussion of the Need for Restriction of the Sale and Distribution of Bichloride of Mercury Tablets. By Martin I. Wilbert, Technical Assistant, Hygienic Laboratory, United States Public Health Service. Reprint No. 151, Public Health Reports, 1913. Government Printing Office, Washington.

**Pellagra.** Brief Comments on our Present Knowledge of the Disease. By C. H. Lavinder, Surgeon, United States Public Health Service. Reprint No. 152, Public Health Reports, 1913. Government Printing Office, Washington.

**Morbidity Reports. Their Importance to the Local Health Officer and His Work.** By John W. Trask, Assistant Surgeon General, United States Public Health Service. Reprint No. 153, Public Health Reports, 1913. Government Printing Office, Washington.

**Flies as Carriers of Lamblia Spores.** The Contamination of Food With Human Excreta. By C. W. Stiles, Professor of Zoology, Hygienic Laboratory, United States Public Health Service. Reprint No. 154, Public Health Reports. Government Printing Office, Washington.

**Monthly Bulletin, Department of Health of the City of New York,** Volume III, No. 12, December, 1913.

**Weekly Bulletin, Department of Health of the City of New York,** New Series, Volume II, No. 52 and Volume III, Nos. 1, 2, 3.

**The Lilly Scientific Bulletin.** Series I, Number 4. Eli Lilly and Company, Indianapolis.

### MEDICAL NEWS

**Canton Banquet**—The Thirteenth Annual Banquet of the Canton Medical Society was held Jan. 21, 1914, at the Courtland Hotel. Preceding the banquet, Doctor E. Gustave Zinke, Cincinnati, Ohio, delivered an address on "Cancer—Prevention, Diagnosis and Treatment."

**Personal**—Doctor T. Addison McCann, Dayton, was re-elected president, and Doctor Lee Humphrey, Malta, vice-president, of the State Medical Board at its annual meeting in Columbus.

**New Officers**—Cincinnati Academy of Medicine, Jan. 5; president, Doctor Allen B. Thrasher; secretary, Doctor Charles T. Souther. Portage County Medical Society at Ravenna, Jan. 8; president, Doctor Louis W. Pritchard; secretary, Doctor Cyrus O. Jaster, both of Ravenna. Clark County Medical Society at Springfield, Jan. 12; president, Doctor James E. Studebaker. Dayton Academy of Medicine, Jan. 9; president, Doctor William H. Delscamp; secretary Doctor Leo R. Courtright. Coshocton County Medical Society at Coshocton, Jan. 8; president, Doctor Thomas W. Lear; secretary, Doctor Jacob D. Lower, both of Coshocton. Washington County Medical Society at Marietta, Jan. 6; president, Doctor



Stanford E. Edwards; secretary, Doctor Stephen A. Cunningham, both of Marietta. Summit County Medical Society at Akron, seventy-third annual meeting Jan. 6; president, Doctor David H. Morgan; secretary, Doctor Alexander S. McCormick (re-elected), both of Akron. Delaware County Medical Society at Delaware, Jan. 2; president, Doctor Arthur H. Buck; secretary-treasurer, Doctor Wendell G. Hyatt, both of Delaware.

**Dayton Physicians to Replace Flood-Damaged Books**—The Montgomery County Medical Society at its regular meeting at Dayton, Jan. 2, voted that its annual appropriation for reference books for its library should be used this year to replace books lost in, or damaged by the floods of last spring.

**Gynecologists to Meet**—The American Gynecological Society announces its annual meeting, to be held at Boston, May 19 to 21. Professor Doctor W. Nagle, Berlin, will deliver an address on "Operative Treatment of Prolapse of the Vagina, and Results."

**Insurance Directors' Meeting**—The Medical Section of the American Life Company will hold its semi-annual session at French Lick Springs, Ind., March 4-6; Doctor J. Allison Hodges, Richmond, Va., is chairman of the program committee.

**Cancer Laboratory Ready**—The Crocker Research Cancer Laboratory at Columbia University has been completed and turned over to the commission headed by Doctor Frances Carter Wood, which will begin its work this month. The building is three stories and a basement in height and 100 by 35 feet.

**Edward N. Bibbs Memorial Prize Fund**—The income of this fund, which amounts to about \$500, is used in aiding investigators into the cause and treatment of diseases of the kidney. The recipient of the fund is chosen annually. The committee will select the worker for 1914 about Feb. 1. For information, write to the Committee of the Edward N. Gibbs Memorial Prize Fund, 17 West Forty-Third Street, New York City.

**Venereal Diseases**—In the early months of 1913 letters were sent by Strong to some fifty physicians in Massachusetts and other states to ascertain the prevailing opinions regarding the reportability and control of venereal diseases by boards of health. As to belief in the reportability and control of venereal diseases by the boards of health, this canvass would seem to show that a majority of physicians do believe in it at the present time. On the matter of practical adaptation and enforcement, the profession is about equally divided, the prevailing view being that more efficient means of treating these diseases in hospitals must be provided before such a move can be taken. Venereal diseases cannot probably be controlled to the same degree as small-pox, scarlet fever, diphtheria, et cetera, for some time to come. The desirability of gathering more accurate statistics regarding the efficiency of the treatment of venereal diseases is widely recognized. This should be done by societies already existing or by the formation of new organizations with this special object.

**Small-Pox in the Navy**—Thirty-four new cases of small-pox have developed at the Guantanamo naval station among sailors exposed on the *Ohio*. The station at Guantanamo has been quarantined.

**Association for the Welfare of the Blind**—The Cincinnati Association for the Welfare of the Blind has submitted its annual report for 1913. Much credit is due to Doctor Louis Stricker for his untiring energy and interest in the work of prevention among new-born infants

So far as is known, there has been absolutely no blindness during the past year resulting from ophthalmia neonatorum, due largely to the promptness with which cases have been reported for treatment. The work done in the workshop amounted to \$14,598. Quite a number of blind men have been given employment in the shop, each receiving a wage of \$6 per week.

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**First National Conference on Race Betterment.**—Four hundred men and women of prominence, comprising the first representative group of scientific experts ever gathered in America for that purpose, met in Battle Creek, January 8-12, to assemble evidence of race deterioration and to consider methods of checking the downward trend of mankind. The meeting was known as the First National Conference on Race Betterment. Through the co-operation of the press, the objects and aims of the Conference have been very widely disseminated and a resultant influence for better race ideals is anticipated.

Already the effect of the Conference is apparent in Battle Creek, where popular interest in mental and physical efficiency was awakened by a series of public school tests, which showed an alarming percentage of defective children in all grades.

The Conference had its inception in the efforts of four men, particularly interested in race betterment—Reverend Newell Dwight Hillis, pastor of Plymouth Church, Brooklyn, N. Y.; Doctor J. H. Kellogg, of the Battle Creek Sanitarium; Sir Horace Plunkett, former Minister of Agriculture for Ireland, and Professor Irving Fisher, of Yale University. At the invitation of a central committee chosen largely by these men, fifty men and women of national prominence in the fields of science and education consented to share in the program. Their addresses, together with open discussion of many of the points considered, constituted a very widespread study of all phases of evident race degeneracy and the advocacy of many ideas of reform. Some of the suggested methods of improvement are frequent medical examination of the well, outdoor life, temperance in diet, biologic habits of living, open air schools and playgrounds, the encouragement of rural life, the segregation or sterilization of defectives, the encouragement of eugenic marriages by requiring medical certificates before granting license and the establishing of a eugenics registry for the development of a race of human thoroughbreds.

Among those having a share in the program were: Reverend Newell Dwight Hillis, Jacob Riis, Judge Ben B. Lindsey, Booker T. Washington, Doctor Victor C. Vaughan, Doctor S. Adolphus Knopf, Doctor C. B. Davenport, Doctor J. N. Hurty, the Very Reverend (Dean) Walter Taylor Sumner and many others of equal prominence.

Some of the interesting statements of the Conference are summarized as follows:

"It will be no easy task to improve the race to the point where there will be no dependent children, but the elimination of the dependent child will be one of the best indices of the superiority of our national stock."—Doctor Gertrude E. Hall, New York State Board of Charities.

"I believe that a great deal can be done by publication of facts as to the physiological effects of alcohol, in the way of inducing educated and intelligent people to conserve their health by limiting the use of alcohol or giving it up altogether."—Henry Smith Williams, Author.

"Eugenics does not eliminate romance. We eugenists believe romance should be retained. Through the past it has proven a good thing."—Professor Roswell H. Johnson, University of Pittsburg.

"In order that the race may survive it will apparently be necessary to make a eugenic selection of healthy mothers to provide that the cost of bearing and rearing children shall be equally shared by all."—Professor J. McKeen Cattell, editor *Popular Science Monthly*.

"The boys are learning that they have a calling just as sacred as



the call to motherhood and that is the call of fatherhood.”—The Very Reverend (Dean) Walter Taylor Sumner, of Chicago.

“The negro in the South, with all his weaknesses and handicaps, is not yet in any measure in the ditch.”—Booker T. Washington, Principal of Tuskegee Institute.

“We must cultivate pure blood, instead of blue blood, if we would develop a race of human thoroughbreds.”—Doctor J. H. Kellogg, Superintendent Battle Creek Sanitarium.

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## CORRESPONDENCE

### THE AMERICAN HOSPITAL ASSOCIATION

Office of the Secretary, Kingston, Ont., Jan. 14, 1914.

To the Members of the American Hospital Association:

At the Boston Convention the persons whose names are appended were appointed a committee to consider the grading and classification of nurses, with instructions to submit a plan of grading to this Association at its next meeting.

The committee held its first meeting in Buffalo, Jan. 13 and 14, and decided to submit the following list of questions to the members of the Association, in order to secure an expression of opinion from all parts of the countries represented in the Association.

You are, therefore, urged to consider the appended questions and mail your replies to *Doctor Renwick Ross, Buffalo General Hospital, before April 15.*

1. In your opinion, is it possible to meet the nursing needs of the average community in city, town and country, in the United States and Canada with graduate nurse service alone?

2. If in your opinion only graduate service should be used, will you kindly present an outline of a practical comprehensive program, for supplying graduate service to all classes needing continuous nursing?

3. If more than one grade of nurse is a necessity, will you please state how many grades you consider necessary? How would you classify nurses so as to include in your classification all who nurse for hire?

4. Will you kindly suggest a substitute term for the grade B or “certified nurse” as recommended by the committee on grading of last year, if you consider that some better term should be used to designate nurses trained in special hospitals or hospitals unable to give a full training. Please state whether or not you are satisfied with the distinctive terms recommended by the committee of last year. Give briefly your reasons if not satisfied.

5. If several grades seem to be necessary, how and where should the several grades be trained?

6. In view of the fact that many tuberculosis hospitals find it impossible to secure sufficient graduate nurses to care for their patients, what measures would you suggest for meeting the nursing needs in such institutions?

7. If training is given in a tuberculosis hospital, how long should the course be and how would you classify those completing such a course?

8. In view of the fact that there is a constant and pressing demand for maternity nurses in homes of moderate means, what measures that are practicable for the average community would you suggest for meeting this need? How classify such nurses?

9. What constructive recommendations would you make with a view to improving on the plans presented by the committee on the grading

of nurses in the report submitted to the Association at the Boston Convention, a copy of which was mailed to each member?

10. Will you kindly suggest to the committee of this year any feasible plans which occur to you for improving the quality of home nursing now being received by those who cannot afford graduate nurses?

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Buffalo, N. Y.

The committee earnestly request the members of the Medical Profession to forward answers to the above questions to Dr. Renwick R. Ross, Superintendent, Buffalo General Hospital, Buffalo, New York, U. S. A.

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**Syphilis.**—E. B. Krumbhaar and C. M. Montgomery, Philadelphia (*Journal A. M. A.*, January 24), found 3 per cent of a thousand new consecutive cases in the outpatient department of the Pennsylvania Hospital syphilitic, which they consider probably less than half of the actual proportion that had contracted the disease. They give an analysis of 108 cases tested by the Wassermann reaction and conclude that their experience will be equalled elsewhere. As regards the proportions encountered in the general medical dispensary, the manifestations of the disease in such cases are often obscure and misleading, and they form a group quite distinct from the type ordinarily found in the dispensaries for genito-urinary, surgical or nervous disease where distinct symptoms-complexes or localizing phenomena are commonly encountered. Students should be instructed as to these atypical forms of syphilis and be impressed with the need of being constantly on the lookout for them. Dispensaries should have, as nearly as possible, a definite routine treatment for these cases, salvarsan having a prominent place and every available means, including the cooperation of the social service department, utilized to insure the carrying out of proper treatment.

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**Plague in Porto Rico.**—S. B. Grubbs, Providence, R. I. (*Journal A. M. A.*, January 24), gives a history of the bubonic plague in Porto Rico in 1912. It was first discovered in a squalid district of San Juan and the positive diagnosis was given to the governor by the director of health, three days after the case was discovered. The governor promptly proclaimed the existence of plague and measures were taken at once to clean up the city and eradicate the disease. Of course, a panic resulted and radical measures were proposed but these, however, were not deemed necessary and the panic quickly subsided. In all 56 cases occurred with 36 deaths and the infection was completely destroyed in three months' time. Grubbs discusses the possible source of the infection and thinks that the most probable origin was from the Canary Islands. He gives the evidences of this, tracing it to the Spanish steamers which also probably carried it at the same time to Havana, Liverpool and New Orleans where it was also promptly suppressed. The history given illustrates the value of international honesty in these matters; prompt reporting of such epidemic or even single cases when they occur giving warning and enabling necessary measures to be taken, is the really efficient method of protection.



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## SOME FACTORS IN THE DIAGNOSIS AND TREATMENT OF SYPHILITIC AORTITIS

By WARFIELD T. LONGCOPE, M. D., New York City

From the many important discoveries within the last 12 years that have laid bare the etiology, natural history and rational therapy of that most interesting disease—syphilis—there have developed numerous studies that throw a side-light here and there, not only upon the clinical course of the disease, but to a certain extent, upon problems directly concerned with the survival of the parasite in the host and the development of the so-called tertiary stage. One of these has to do with the invasion of the wall of the aorta by the spirochaete pallida, its survival in this situation and its ability to produce changes in the coat of this great vessel. For some reasons, as yet unsatisfactorily explained, the locations that seem to be most frequently selected by the spirochaete for their safe protection and survival are the central nervous system and aorta.

It is now unnecessary for me to point out the great frequency with which tabes and paresis on the one hand and aortitis on the other occur as a late manifestation of syphilis. Since it is the root of the aorta that is usually the seat of the disease, the extension of the syphilitic process frequently, though not always, leads to one or more of three well recognized conditions, namely, aortic insufficiency, aneurysm and angina pectoris. In a fully developed state any of these conditions may be readily recognized, but the statistics of Obendorfer\* emphasize not only the frequency of syphilitic aortitis, but the large number of cases in which the disease is unsuspected during life. In 21½ years he encountered 99 cases at autopsy, the disease occurring in 6.89 per cent of all autopsies, and of these 99 cases only 40 were suspected during life.

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\*Obendorfer: Münch. Med. Wchnschr., 1913, XL, 505.

It is obviously impossible to diagnose a small patch of syphilitic disease of the aorta which may give no signs or symptoms, but it is wise to investigate with the utmost care two systems of the body in all persons who give a positive Wasser-



Fig. 1. X-ray of chest viewed from behind, showing diffuse dilatation of ascending and descending arch of aorta.

mann reaction. These two systems are the central nervous system and the cardiovascular system. The association, moreover, between syphilis of the aorta and central nervous system has seemed most important to us. The frequency of aortic insuf-



ficiency in tabes has long been recognized and I have been struck with the common combination of the two conditions. Of 24 cases of syphilitic aortitis that I have seen during the last year, 6 or one-quarter have presented evidences of disease of the central nervous system. Excluding aneurysms, three have shown



Fig. 2. X-ray of chest viewed from behind. Showing knoblike projection of arch towards the left.

unequal or fixed pupils, while three have had signs of tabes or paresis with increased cells, globulin and a positive Wassermann reaction in the spinal fluid. In one instance the disease of the central nervous system was not suspected until after the first

intravenous dose of salvarsan when acute symptoms with delirium appeared suggesting paresis. The spinal fluid showed 10 cells, a marked globulin and positive Wassermann reaction with 0.3 cc. of fluid. Later these symptoms subsided and the patient

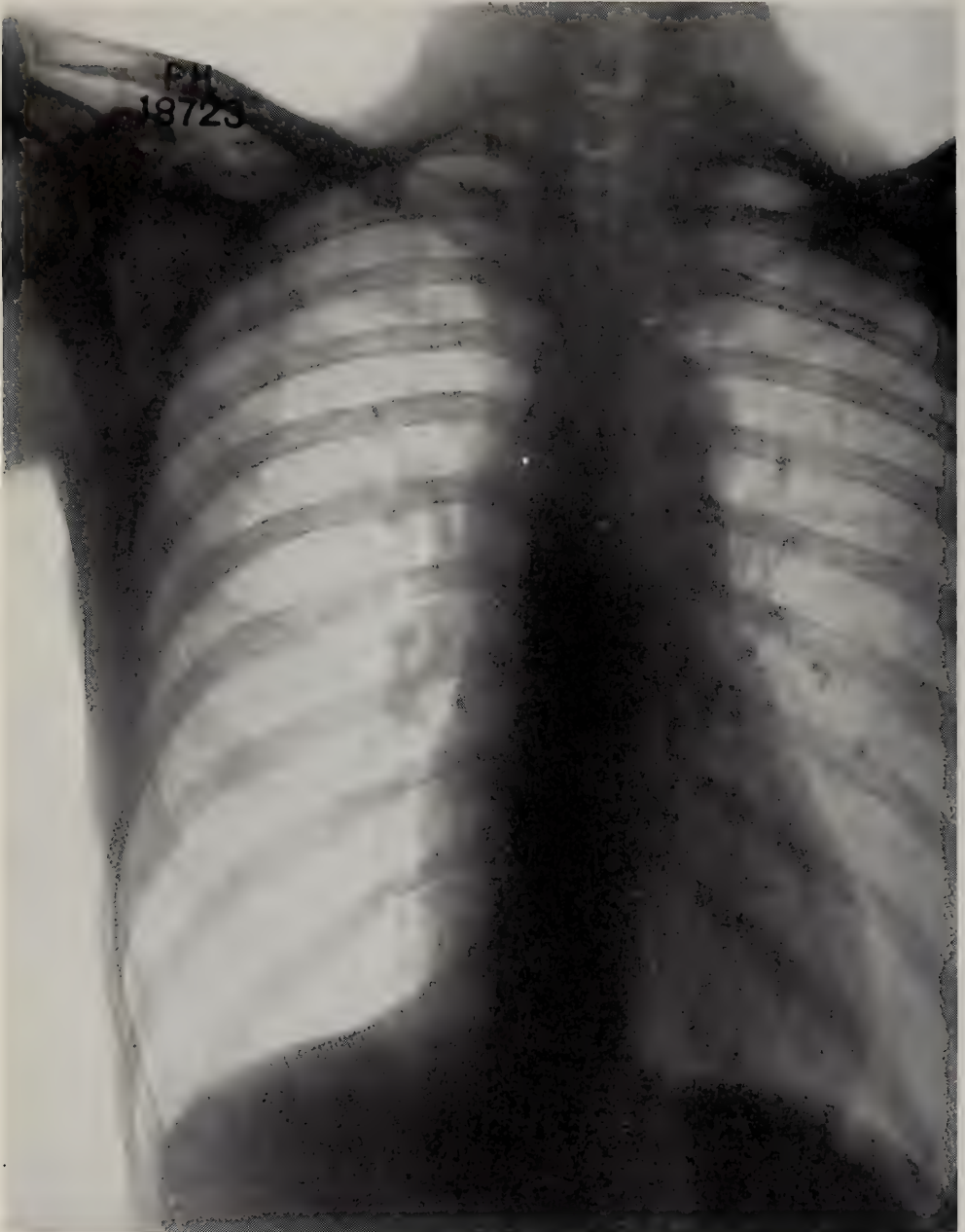


Fig. 3. X-ray of chest viewed from before, showing irregularities in outline of dilated aorta.

was discharged. He died within a month of heart failure. It is now our custom not only to make as thorough an examination of the central nervous system as possible but to study the spinal



fluid as well in all cases of syphilitic aortitis before they are treated. Conversely it is essential to pay particular attention to the cardiovascular system of all cases that present even a single sign of syphilis of the central nervous system.



Fig. 4. X-ray of chest viewed from behind, showing diffuse dilatation of arch of aorta with shadows extending up beneath clavicles.

Of the difficulty of diagnosis I shall speak later, but first let me call attention to a few features that are of aid in studying the disease. Of the clinical symptoms, perhaps pain is the most important. Many observers, and among them Cummer and Dexter\* have called attention to this point. Oppression, dull or

\*Cummer & Dexter : Jour. Amer. Med. Assn., 1912, lix, 419.

sharp pain beneath the sternum or in the region of the apex is a common symptom, and in a middle-aged man this alone always excites suspicion. Attacks suggesting angina pectoris or true angina are frequently met with. Occasionally these symptoms



Fig. 5. X-ray of chest viewed from behind, showing extreme irregularity and enlargement of aortic shadow, not of syphilitic origin.

precede all others for months. Slight dyspnoea may accompany the pain or follow it and as a most evil foreboding, but occasionally the first warning there come frightful attacks of dyspnoea.

Another symptom, scarcely of diagnostic aid, for it is not



present with sufficient frequency, is fever. Fairly often, one sees in syphilitic aortitis slight fever, or very great diurnal fluctuations in temperature, but occasionally persistent fever is encountered, which leads one to suspect in the presence of an aortic insuffi-



Fig. 6. Photograph of heart and aorta shown in X-ray Fig. 5.

ciency that he is dealing with an acute endocarditis, or in the absence of valvular lesions is, until the diagnosis is made, of very obscure origin.

As to the signs, aside from the actual presence of an aortic insufficiency or aneurysm one must depend largely upon the size and shape of the aorta and the heart itself. With continued study of this disease one comes to put great dependence upon

abnormal changes in the size and contour of the aortic arch, and though, in combination with a positive Wassermann reaction such alterations are of great value, alone they may lead one to false conclusions.



Fig. 7. X-ray of chest viewed from before, showing aneurysmal bulge at root of aorta, not due to syphilitic aortitis.

In the cases with moderate dilatation it may be possible to see a pulse in the episternal notch and to elicit dullness over the manubrium. In more advanced cases a distinct pulsation is usually present in the second and third interspaces to the right of the sternum, in the episternal notch and occasionally beneath



the clavicles. Often a heave is noticeable beneath the manubrium and is sometimes perceptible to the right of the sternum. A crown of veins may skirt in a concentric line the right border of the sternum. There is a broad area of dullness over the manubrium extending to right and left 1 to 3 cm. which occasionally slants up and out laterally beneath the clavicles. This latter dull area seems to correspond at autopsy to the dilated great branches of the aorta. On auscultation the second sound at the aortic area is frequently liquid in quality or bell like though it may not be loud. This is a characteristic sign and depends for its origin and intensity upon the degree of dilatation of the aorta and condition of the vessel wall rather than upon the blood pressure. Indeed, it is quite independent of the general system pressure and may be most striking when this is low. In many instances a systolic murmur is heard at the aortic area. The pulse in the absence of a demonstrable aortic insufficiency may be collapsing in type while there may be a capillary pulse as well.

The most accurate information is obtained from fluoroscopy or X-ray plates. The deviations from normal can now be studied with ease. The commonest change is the general widening of the entire arch shadow, which in very good negatives can be resolved into a descending and ascending portion (Fig. 1). Occasionally the curve at the summit of the arch is especially prominent and sticks out like a knob (Fig. 2), and in other instances there are irregular projections that bulge from the lateral aspects of the shadow (Fig. 3). Finally the summit of the arch may widen into a pyramid-shaped area with base upward. This corresponds to the area of dullness beneath the clavicles and at autopsy with the dilated branches of the aorta (Fig. 4).

As striking and as definite as many of these signs and pictures appear, they are by no means diagnostic of syphilitic aortitis in themselves, and may be given by an aorta that at autopsy though dilated shows no signs of syphilis, or indeed disease of the intima. The picture (Fig. 5) is especially striking, but at autopsy the extreme pulsation, dullness and apparent enlargement seemed to be due only in part to a dilatation. A more important factor appeared to be a general increase in the length of the arch with longitudinal stretching giving rise to a circoïd condition that exaggerated the size and pulsation of the vessel (Fig. 6). There was no syphilitic aortitis. In spite of a negative Wassermann reaction the evident extreme dilatation of the arch combined with a diastolic murmur, attacks of pain down the arm

and severe paroxysms of dyspnoea in a woman 58 years of age, led during life to the diagnosis of syphilitic aortitis. In a second case of this same type the X-ray showed not only a large aorta but an irregular bulge to the left (Fig. 7). The patient, a man of 76, suffered from severe attacks of paroxysmal dyspnoea. The Wassermann reaction was negative. At the autopsy performed by Doctor Lamb, the aorta showed a diffuse dilatation with a rounded aneurysmal bulge corresponding to the X-ray shadow. There was no evidence of syphilis of the vessel. Since then other and similar cases have come under observation. It is, however, probable that the aortitis of syphilis may heal and under these circumstances the Wassermann test may be negative though the dilatation is caused by an old syphilitic process.

In one case of aneurism of the arch supposed to be of such a nature I found at autopsy the wall of the aorta covered with calcareous plaques and greatly thinned. Microscopic examination showed the media scarred and partially destroyed but free from cellular foci. I am persuaded that all signs and symptoms except a Wasserman reaction including substernal pain, angina, paroxysmal dyspnoea and even in rare instances aortic insufficiency may occur in non-syphilitic dilatation. It suggests again that many of the symptoms are due to disease of the wall of the aorta whether it be syphilitic or not.

The results of specific therapy in syphilitic aortitis have not been brilliant, but in certain respects they have proved sufficiently encouraging to make us feel that persistence and perfection of methods may result in at least an arrest of the disease process. At first salvarsan was used alone, later this was combined with mercury and recently for a reason that I will explain later potassium iodide has been employed as well.

The results of the treatment of 31 cases are shown in the following table. Six more cases are now under observation, bringing the total to 37.

#### RESULTS OF TREATMENT IN 31 CASES OF SYPHILITIC AORTITIS

Diagnosis	No. of Cases	Improvement Temporary	Unimproved	Lost Sight of	Living	Dead
Aortic Insufficiency .	20	16	4	3	4	13
Aneurism . . . .	3	2	1		1	2
Angina Pectoris & Aortitis . .	7	6	1	3	3	1
Congenital Syphilis . . . .	1	1			1	
TOTAL . . . . .	31	25	6	6	9	16



From this table it may be seen that of the 31 cases 25 or 80.6 per cent have shown temporary but often very striking improvement. But relapse has been the rule and only 9 or 29.0 per cent of the patients are known to be alive; over half or 55.5 per cent are known to have succumbed. The improvement has manifested itself as cessation of pain and attacks of paroxysmal dyspnoea and angina pectoris with general feeling of well being, increased strength and recovery from mild grades of cardiac failure. When cardiac failure was severe duration of life has been very short both in treated and untreated cases. Many die suddenly.

The treatment of this condition is fraught with many difficulties. In the first place the use of salvarsan is not without

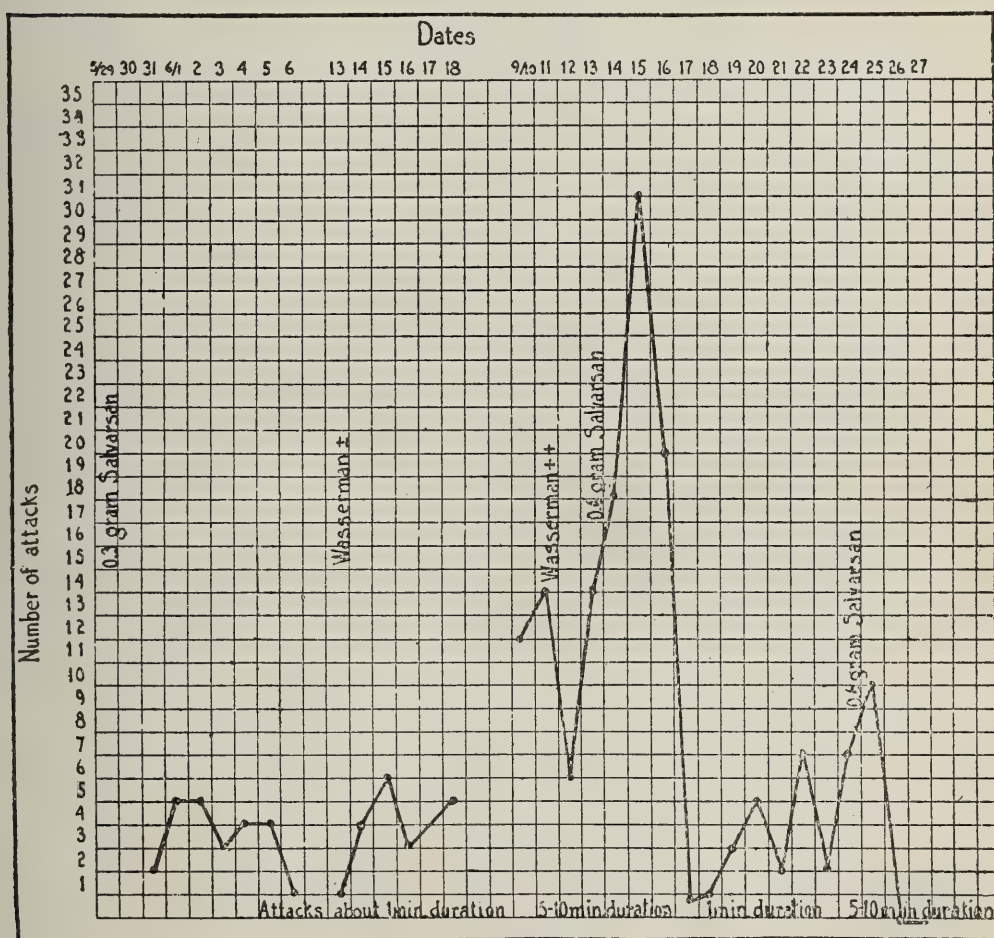


Fig. 8. Chart with curve showing the number and duration of attacks of angina following the intravenous administration of salvarsan in a case of angina pectoris

danger and there have been (fortunately but rarely) some alarming experiences. Within 12 to 48 hours after a moderate or full dose of salvarsan there may be severe precordial pain, attacks of dyspnoea or a sudden attack of angina pectoris in a patient who had not shown this symptom before. In cases of angina repeated and severe attacks may follow a single injection. The accompanying chart shows the curves of attacks of pain in such a case. (Fig. 8.)

The exacerbations and unexpected occurrences of pain, dyspnoea and angina are to be explained as a type of Herxheimer reaction, and it is probable that with the sudden destruction of a certain number of spirochaetes in the wall of the aorta there is liberated an unusual amount of poison which acting upon the sensitive inflamed aorta gives rise to exacerbations of symptoms. Since these exacerbations of pain may be dangerous they must be avoided at all costs.

To do this it is advisable to precede the salvarsan injections by two or three intramuscular injections of mercury salycilate and to start salvarsan in small doses. The safe maximum for the first dose is 0.2 to 0.3 grams, though after repeated injections provided there are no ill effects the dose can be increased to 0.4 or 0.5 grams, and even in rare instances to 0.6 grams. Under the most favorable conditions, however, this makes it necessary to give a great number of injections and hampers one in obtaining the full therapeutic effect of the drug. It is, therefore, necessary to employ mercury together with salvarsan and to use this drug in full and oft repeated doses.

A second and very serious difficulty is in obtaining through treatment any evidence of permanent cure of the disease. I have not as yet had an opportunity of studying the tissues from a treated case, but I have had ample opportunity to see that it is almost impossible to obtain a negative Wassermann after even prolonged treatment. A few injections of salvarsan and mercury are of no avail. In one case after injections of salvarsan amounting to 3.0 grams only a temporary negative Wassermann was obtained. In another of my cases treated by Doctor Fordyce with eight injections of salvarsan together with courses of mercury and potassium iodide, a positive reaction was converted into a negative reaction, but usually the Wassermann has remained strongly positive, or indeed in some instances has been



converted during treatment from a weakly to a strongly positive reaction.

A third difficulty is the rapid progress of the disease after the development of symptoms. Of the total 50 fatal cases of syphilitic aortitis that I have seen 31 or 62 per cent died within two years of the onset of symptoms, while of these 13 or 26 per cent succumbed within a year. Of Deneke's\* 200 cases 70 per cent died within two years. We must, therefore, regard the disease as rapidly fatal once symptoms have become manifest.

Consequently it must be our duty to devise methods, if possible, of overcoming some of these difficulties and stopping the course of this very tragic disease. For the future the path is theoretically clear, since it is only necessary to strike the evil at its root and treat with the greatest care and precision the primary and secondary cases of syphilis; but for the present we must care for the late as well as the early cases.

Once having manifested itself by symptoms, since the progress of the disease is so rapid, and the treatment must be continued for months and even years, it is evident that therapy, to be effectual, should be started as soon as possible. The hope here lies in early recognition of the disease and in the discovery of what one might call latent aortitis. From studies of the spinal fluid in primary and secondary syphilis it has been shown that infection of these tissues frequently takes place during the very early period of the disease and that the spirochaetes probably lie dormant here for many years. Though it has not been demonstrated, it is possible that the same conditions may exist in infection of the aorta. Certainly the latent period between the primary infection and the onset of symptoms of aortitis is many years. In Cummer and Dexter's series it was 17.2 years, in mine 16.4 years and in Deneke's 20.25 years for men. What characterizes the progress of the disease we do not know, but it is certain that some signs may precede symptoms and, if it is possible, every effort should be made to diagnose the condition while the disease is, so to speak, still latent.

With this problem in mind, it has recently been possible, I believe, to determine the existence of a definite aortitis in six patients in whom treatment could be instituted before the slightest symptom manifested itself. Curiously enough, three (3)

\*Deneke: Deut. Med. Wchnschr., 1913, xxxix, 541.

of these cases have been in women. All six gave a triple positive Wassermann reaction. In two, one a woman and the other a man, the existence of an aortic insufficiency with dilatation of the arch, was found unexpectedly during a routine physical examination. The third patient, a woman of 49, who had one miscarriage and whose husband had died of aneurysm, had suffered for some years with pain in the back. The symptoms were those of severe neurasthenia, but the examination showed fixed pupils, slight dullness over the sternum, no enlargement of the heart but a faint diastolic blow at the apex; while the X-ray and fluoroscopic examination revealed distinct enlargement of the arch. The remainder of the physical examination including X-rays of the spine were negative. Two other patients, one a man of 50, the other a woman of 45, suffered from severe symptoms of neurasthenia, and though the general physical examination, including the spinal fluid, was negative, X-ray disclosed in each instance considerable dilatation of the arch. The presence of a syphilitic aortitis was the only thing to account for the positive Wassermann. Finally the sixth patient, a man of 34, was fortunately admitted to the hospital for acute flat foot. An Argyll-Robertson pupil excited suspicion. After he had remained quiet in bed for three days it was possible to detect a soft diastolic blow along the left border of the sternum. There were no peripheral signs of aortic insufficiency, no enlargement of the heart area. An X-ray showed marked dilatation of the aortic arch. Though the Argyll-Robertson pupil was absolutely the only sign or symptom of syphilis of the ventral nervous system, a lumbar puncture gave 71 cells per ccm., a positive globin and positive Wassermann reaction with 0.1 cc., 0.3 and 0.5 cc. of spinal fluid.

It is evident then that a positive Wassermann reaction in an advanced syphilitic should put one on his guard and demands a most careful scrutiny of the cardiovascular system. Any slight abnormality needs explanation and even in the face of a negative physical examination a fluoroscopic and X-ray examination should be made. Pupillary changes, too, are of considerable significance.

A second important point of attack is the lesion itself, and too much emphasis cannot be placed upon the extended and intensive treatment which syphilis in this situation requires. In some



recent lectures Flexner\* has pointed out the difficulties which surround the treatment of local infections by general measures and presented as one illustration the treatment of syphilis of the nervous system and the benefits which have been derived by Swift and Ellis\* through direct application of salvarsanized serum to the meninges by means of intraspinal treatment. The problem in syphilitic aortitis is much the same. The spirochaetes have been shown to lie in the walls of the aorta often in the intima thickened by a growth of cellular connective tissue or in the necrotic foci of the media. To these localities there is but little blood and lymph supply, and moreover the organisms are further protected from the circulation by old inflammatory tissue. One can readily imagine that under such circumstances it is extremely difficult to reach the infecting agent by way of the blood stream and since this is the only channel through which we can introduce our spirochaetacidal substances we are at the outset seriously hampered.

In an effort to overcome this factor to some extent we have resorted to the assistance of potassium iodide. It has long been thought that potassium iodide exerted a beneficial effect upon all types of arteriosclerosis and in gummatous syphilis it is known to further the absorption of necrotic material. Some recent studies of Jobling and Petterson have shown quite definitely that potassium iodide through its union with the non-saturated soaps inhibits in vitro very markedly the antitryptic action of the blood and that when added to caseous material it hastens, to a considerable extent, autolysis.

From every standpoint, therefore, it has seemed wise to add potassium iodide to the treatment of these cases of syphilitic aortitis in hopes that at least part of the necrotic material in the wall of the aorta will be absorbed and the spirochaetes thereby left more open to attack by the salvarsan and Hg in the blood stream. Up to the present we have only been able to employ this method in a few instances, but so far the results have seemed very encouraging. One patient with aortitis and enlarged heart who had been seriously ill and unable to work for two years, has now for two months been up and working, feeling perfectly

Flexner: Jour. Amer. Med. Assn., 1913, lxi, 447; 1872.

Swift & Ellis: Deut. Med. Wchnschr., 1913, xxxviii, 1446.  
Arch. Int. Med., 1913, xii, 331.  
Jour. Exp. Med., 1913, xviii, 428.

well. Besides his mercury salicylate and salvarsan he received potassium iodide in doses of 150 grains a day for about one month. A second patient treated first with a course of salvarsan and mercury, during which time the Wassermann reaction remained positive, has now shown twice a negative Wassermann when a second course of salvarsan and mercury was preceded and accompanied by prolonged use of potassium iodide in doses of 150 grains a day.

To summarize, I may say that syphilitic aortitis is a common manifestation of tertiary syphilis, in this respect approaching in frequency tabes and paresis. It is, moreover, in many instances, associated with syphilis of the central nervous system. The diagnosis in most instances is first made after the appearance of aortic insufficiency, aneurysm or angina pectoris and when such symptoms as pain, paroxysmal dyspnoea and evidences of slight heart failure have already appeared. Without these signs dilatation of the aortic arch is the most reliable evidence, though cases of non-syphilitic dilatation may occur presenting exactly the same clinical picture as syphilitic aortitis. A positive Wassermann reaction is, therefore, essential for an accurate diagnosis.

The results of treatment with salvarsan and mercury have rarely given more than temporary relief. The reason for this seems to depend at least in part upon a number of factors. Owing to the danger of Herxheimer reactions, only small doses of salvarsan can be administered safely intravenously, though Hg seems to be without harm. Prolonged treatment is, therefore, required. In the second place, once symptoms have appeared, the life of the individual is very short, from 65 to 70 per cent of the cases living only one to two years. To overcome this factor it is necessary to make the diagnosis early and institute treatment before irreparable damage has been done. And finally, the eradication of the disease, on account of the situation of the spirochaetes, peculiarly protected from the blood stream, is especially difficult. In an attempt to break down this barrier potassium iodide in large doses may be of assistance, and must be combined with prolonged and persistent specific therapy.

For the use of the skiagram I am indebted to the X-ray department of the Presbyterian Hospital, which is under the direction of Doctor E. W. Caldwell.



## THE DENTITION OF THE APES

### A Study Preliminary to the Presentation of the Results of Recent Researches on Man's Place in Nature\*

By T. WINGATE TODD, F.R.C.S., The Anatomical Department,  
Western Reserve University, Cleveland, Ohio.

When human palaeontology first received serious attention, the theory of evolution was already accepted, yet discussions of the origin of man were conducted with quite unnecessary heat. It was with difficulty that scientists even were convinced of the antiquity of man in his present form, and every new-found fossil bearing on his phylogenetic development aroused a fresh controversy. Although in this series of demonstrations attention will be directed mainly to the study of prehistoric man, yet it would be incomplete without some mention of his ancestors and of the gradual evolution of his type. At these first meetings therefore, the teeth and their relation to the jaws of primates will be considered. In later demonstrations we shall see the advantage of this early discussion.

Thanks to the kindly interest of the City Administration in giving us every facility at Brookside Park and in sending us the bodies of the animals which die there, and as the result of careful preservation during the last twenty years in the Anatomical Department of material bearing on the subject, we are enabled to illustrate clearly the main facts concerning the order Primates.

In this group are included the lemurs, monkeys, anthropoid apes and man. It could be easily divided into two orders, the lemurs in one and the rest in the other, were it not for the occurrence of certain fossil types. The actual dividing lines between *all* apes and *all* lemurs are very few, but we have not time or space fully to consider these just now. Moreover, it may be mentioned that the number of primitive characters found among primates and even in man himself is remarkable. The five digits on both limbs, the plantigrade walk, the presence of clavicles and of a centrale, the absence of a third trochanter—are all features which distinguish the early mammals. Perhaps the most striking feature in which the lemurs differ from the other primates is the possession of a nondeciduate placenta. But at present we shall confine our more strictly scientific observations to the skull.

\*Containing the Substance of the Museum Demonstrations on Human Palaeontology, delivered on February 12 and 17, 1914.

The lemur is a small arboreal animal usually about the size of a cat. It is easily domesticated and may be kept as a pet. Most of the varieties come from Madagascar, where out of 70 species of mammalia, no less than 35 are different types of lemurs. During the hotter hours of the day the lemur lies asleep nestling to its neighbor, for it is a gregarious animal, and coiling its long tail around it. If awakened it gives little inarticulate cries and deep sighs like a child. In the twilight, morning and evening, it seeks its food, insects and fruit, bird's eggs and birds themselves, but is always restless while awake and always noisy, so that the natives of Madagascar believe it to be the wandering spirit of one of their departed dead. Its very name means "ghost." Like all monkeys in captivity, it is liable to tuberculosis, of which disease indeed the specimen here presented died.\* Examination of the skull of the lemur shows that it differs from that of the higher primates in the three following characters. The rim of the orbit is certainly complete, but apart from this there is no plate of bone between the orbit and the temporal fossa. The nasal duct opens on the face and not in the orbit. The mental symphysis remains ununited throughout life. To the first of these, the little spectre lemur forms an exception, for its skull simulates that of higher primates in this respect. Moreover, in some American monkeys the mental symphysis remains unclosed. The teeth are also easily distinguished from those of the higher primates. In the upper jaw the incisors vary in number, but are small and set widely apart. In the lower jaw, as seen in the sketch, the incisors, three in number on each side, are procumbent.



Fig. 1. Left half of the mandible of the Lemur. Two-thirds natural size. Note the procumbent incisors and incisiform canine, the caniniform first premolar and the sharp cusps of the molars.

This is said to be due to the manner in which the animal uses them to comb its fur. But it also has a peculiar claw on the second toe, which popular idea considers to be a special scratching instrument for its fur. In all probability the most lateral incisor, which is larger than the other two is really the canine, and the

\* For obvious reasons, photographs of the animals so generously presented by the City Administration and exhibited at the demonstrations cannot be reproduced in this article.



so-called canine of the lower jaw is the first premolar, for the last mentioned tooth articulates *behind* the canine of the upper jaw. The true upper canine is the first tooth implanted in the maxilla; the lower canine the tooth which articulates in front of this. Here it may be remarked that the canine teeth have another function besides that of acting as weapons of offence and defence. They form dental guides by their interlocking as the jaws close. In animals whose muscles of mastication are so powerful that the toughest and most resistant of edible foods can be crushed between the teeth, there will be some tendency for the mandible to skid or slip sideways. But this movement is prevented by the canines coming into contact on the closure of the jaws. Until the canines are reduced in size, no side-to-side or oblique masticatory movements are possible. Such action does not occur in the lemur because of the prominence of the upper canine and the caniniform character of the first lower premolar. The lemurs, like the New World monkeys, have three premolars on each side, whereas the other primates possess only two.

Among some fossil lemurs, however, the reduction of the lower canine to incisiform characters and the consequent caniniform appearance of the first lower premolar does not appear. Their dentition is similar to that of the apes. One may say that the existing features of the dentition of the lemur, therefore, are evidence of specialization. And from the condition of the fossil species we conclude that apes and lemurs probably had a common ancestor. The premolars of the lemurs are flattened laterally and show the transition between a simple tooth like the incisor and the complicated molar. The molars of the lemur indeed have sharp pointed cusps very different from the nipple shaped cusps of the other primates. They are also three-cusped tritubercular teeth, whereas in higher primates a portion of the tooth called the cingulum develops a fourth cusp, which gives the molar its characteristic appearance. While the number of molars in the lemur is usually three on each side, it may be four. Now supernumerary tooth masses occur in the gorilla. And among the marsupials four molars form the rule. Hence it may be that in this also the primates tend to exhibit a primitive character, and are derived from an ancestral type which possessed four molars on each side.

The other suborder, Anthropoidea, includes all the remaining members of the primates, namely, the marmosets, monkeys,

baboons, apes and man. Of these there are representatives in both Old and New Worlds, although the apes and man originated only in the Old World, while the marmosets and some of the monkeys, such as the capuchins, howlers and spider monkeys, occur only in the New. The differences between the Old and the New World monkeys are pronounced, and as a rule inhabitants of the one hemisphere can readily be distinguished from those of the other. If a monkey be observed to store away nuts in cheek pouches for future enjoyment, it is certainly one of the Old World series, for those of the New are unprovided with such convenient receptacles. But this difference is not absolute, as not all of the monkeys of the Old World have the pouches. A more certain distinguishing feature is the nose. In the American monkeys the nostrils are wide apart and directed outwards, whereas in the monkeys of the Eastern Hemisphere they are close together and look downwards as in man. For this reason the American monkeys are said to be *Platyrrhine* in character, while those of the Old World are *Catarrhine*.\* Many, though not all, of the New World monkeys have a long prehensile tail, a character unknown among the Eastern monkeys. This is probably one of the ways in which the American group early became specialized, and having become specialized, they were unable to progress to a higher plane. From this it will be gathered that the affinities between man and the New World monkeys are remote and unimportant, although on a superficial examination there appear isolated examples of striking likeness. For example, while owing to the presence of a third premolar, the New World monkeys generally possess four teeth more than man, yet the upper molars of some (spider and howling monkeys) present the well-marked oblique ridge, which is also found in man, joining the antero-medial with the postero-lateral cusp, a feature absent from the monkeys of the Old World with the exception of the anthropoid apes.

A characteristic of the skull which enables one to judge between the series of the two hemispheres is the relation of the bones at the pterion. In the New World monkeys the malar and parietal frequently come in contact. In the Old World monkeys they are separated by the articulation of the frontal with the sphenoid. In the Old World monkeys generally the external

\* Πλατύς, flat; ῥίς, ῥινός, nose.

Κατά, down; ῥίς, ῥινός, nose.



auditory canal forms a bony channel; in New World monkeys it is wholly cartilaginous.

It is interesting to note that the differences between the monkeys of the Eastern and Western Hemispheres were always as marked as they are now. All fossil remains bear out this statement. Have there been, therefore, two lines of descent, two separate stocks of ancestors? Were this so, it is difficult to understand how there came about the very great similarities which exist between the two groups. But if the view of a common ancestry be adopted, it is equally difficult to understand how it is that, having been separated so long as they must have been, the two stocks have not diverged further. At any rate the Platyrrhine group seems to be the lower of the two and to have specialized earlier. However, as the New World monkeys bear no immediate relation to man, and certainly diverged from the parent stock long before the common ancestors of man and the anthropoids appeared, this group may be dismissed from further consideration here.

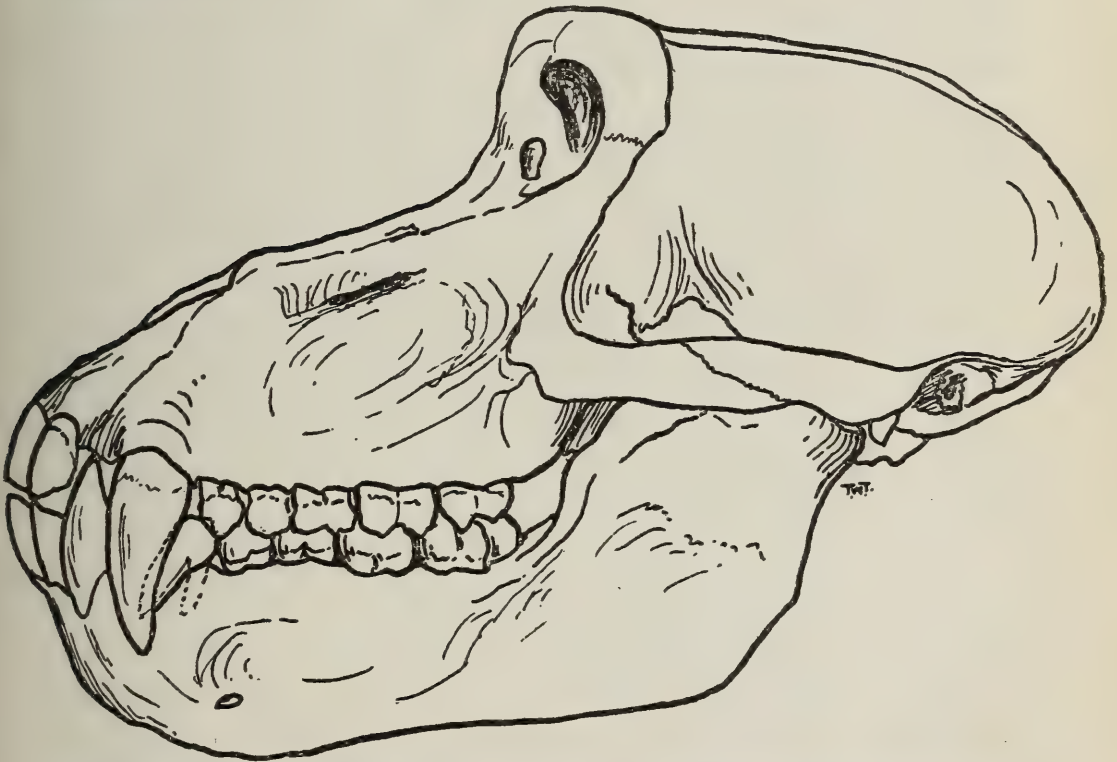


Fig. II. Left side of the skull and mandible of the Baboon. Two-thirds natural size. Note the dog-like prolongation of the jaws, the large canines, the diastema between the lateral incisor and canine of the upper jaw, the oblique position of the first premolar (dotted lines) and the long narrow molars.

The Catarrhine or Old World group includes the anthropoid apes or Simiidae, and the other monkeys found in the Eastern

Hemisphere which are all included under the term Cercopithecidae. To these no doubt should be added man in his various forms, but attention will be paid to him later. The Cercopithecidae consist of the baboons, macaques, guenons and mangabeys in one subfamily, and the guerezas and langurs in another. In general it may be said that while the Cercopithecidae have the same number of teeth, arranged in the same manner, their individual characters differ from those of the teeth in the anthropoid apes and in man. The upper and lower molars are alike. In the case of the upper molars the oblique ridge noted in the Platyrrhine apes, the Simiidae and Hominidae does not exist. Instead, there are transverse ridges between proto and para-cones and between hypo and meta-cones. The canines of the male are much larger than those of the female. The macaques and baboons have short tails as a rule, and are thick-set monkeys with comparatively short limbs. In them there is a space or diastema between the lateral incisor and canine of the upper jaw. The first lower premolar has two roots and is set obliquely in the jaw, pointing upwards and backwards in a very characteristic manner. The third lower molar is larger than the other two and possesses five cusps. Among the baboons the most noteworthy features are the dog-like snout and the occurrence in certain species of brilliantly colored cheeks and buttocks (ischial callosities). As the colors are vivid and by no means in harmony with any known scheme of beauty, the animals are among the most hideous of living creatures. But the social life of baboons is extremely interesting. Domestic discipline is severe. The female has to do exactly as she is told or there is trouble. Carl Hagenbeck tells how one lady Atbara baboon (*Cynocephalus doguera*) was caught three times in the same trap, and each time (the writer regrets to say) with a different husband. Of course she may have been densely stupid, but when one bears in mind the domestic relation just cited, it seems more probable that although widowed twice, she was compelled by her third husband to follow him, however unwillingly, into the trap. But if home discipline is Spartan, there is much kindness between baboons. In one battle between Hagenbeck's hunters and 3,000 Arabian baboons (*Cynocephalus hamadryas*), one little baboon which had been injured by a blow from a cudgel was picked up and safely carried off by a great male from the very midst of the enemy. In another instance a lady baboon who had already one infant on her back



picked up and carried into safety another little one whose mother had been shot.

Of the macaques perhaps the most interesting is the Gibraltar ape (*Macacus Inuus*), the only European monkey now existing. Indeed the nuisance which this animal is to the inhabitants of the Rock would soon decide its extermination but for the fact that it is protected by law, and although once very near extinction, seems now to be on the increase. Apparently this was the monkey dissected by Galen and is the *Pithecus* of Aristotle, for it is the only macaque which has no tail at all. The animal is a singularly good parent, and the fathers are in the habit of taking the babies out for walks (and scrambles) over the rocky cliffs.

The guenons and mangabeys have long tails and are more slenderly built than the macaques and baboons. Their limbs also are comparatively long. In these monkeys the supra-orbital ridges are less pronounced, and the third molar is reduced in size, being quadricuspid like the first and second molars, except in the rare Talapoin, in which it is tricuspid. The guenons make good pets, and a very favorite one is the pretty little Diana monkey. Mrs. Bowditch made great friends with one on board ship. It was very lively and mischievous, stole the men's knives, tools, handkerchiefs and even their caps and threw them into the sea. It carefully fed the parrots, chewing up the biscuit and presenting them with the bits; caught another small monkey and painted it black!

The mangabeys are very similar to the guenons, except that they have five cusps on the last molar. They are peculiar in having white upper eyelids. The Sooty Mangabey is so ceaselessly active and indulges in such grotesque antics and attitudes that it is believed (erroneously of course) to possess more joints in its body than any other species.

The guerezas and langurs are slenderly built animals with long limbs and a long tail. The facial angle is greater than in other monkeys. The third lower molar is quinecuspid as in macaques. Because the thumb is generally small and the nostrils somewhat wide apart, there is a distant superficial resemblance to New World apes, a similarity which is not confirmed on closer inspection. The most curious feature of these monkeys is the stomach, which is of a very complicated structure and quite different from the stomach of any other primate. The guerezas are African, and the skins of some are in great demand for use

as plumes among Abyssinians. Among the Arabs there is a tradition that when the Guereza sees that escape is hopeless, it sits down and tears its skin that its captor shall not profit by its death.

The langurs, or Holy Apes, are Asiatic. The Hanuman monkey, sacred to the Monkey God, frequents—infests, one might say—the bazaars of India. As this monkey is sacred it cannot be killed, and the natives try to reduce its ravages by packing numbers of the species into baskets and taking them fifty or sixty miles away in a bullock cart in the hope that they will not return, but will give their attention to the neighbors—a futile hope in most instances!

The Simiidae or anthropoid apes comprise the Gibbon, Orang, Chimpanzee and Gorilla. Of these the Gibbon is quite a small animal, weighing only seventeen pounds when adult, whereas the others are all as heavy as or heavier than man. The sitting height of the three last-mentioned apes is greater than that of man by an inch or two. No tail is present in any, nor is the third lower molar provided with a heel or talon. The affinity of the gibbons to the Old World apes already mentioned is shown by the presence of small but distinct ischial callosities. These do not occur in other anthropoids. Apart from its small size, the most noteworthy feature of the skull of the gibbon when compared with that of other anthropoids is the length of the canine teeth, which are of equal or nearly equal size in the two sexes.

In general the jaws of the anthropoid apes may be said to differ from those of man in the following particulars:

1. The jaws are squarish.
2. The incisors lie in a straight line between the canines.
3. There is a distinct diastema (space) in the upper jaw between the lateral incisor and the canine.

(All these characters are dependent on the comparatively large size of the canines.)

4. The premolars and molars lie in a straight line, those of the two sides converging somewhat as they pass backward.

5. The premolars present the same number of roots as the molars, namely, three in the upper jaw and two in the lower. They are more pointed than in man.

6. The molar teeth are squarer; their cusps are longer and sharper and have their characteristic patterns better developed than in man.



7. The third molar (in Orang and Gorilla) is larger than the first or second.

8. The intermaxillary suture remains open longer than in man.

9. The muscles of the tongue rise from a depression on the deep aspect of the jaw at the symphysis, below which is a shelf-like piece of bone, the simian chin-plate. In man these muscles rise from a prominence, the genial tubercles.

The Orang lives in the steaming tropical forests of the Malay Archipelago, and though it is more often found in captivity than the Gorilla, yet because of its delicate health it rarely survives to adult age. It is slow and sedate in its movements and can be taught tricks with ease. At home in Borneo and Sumatra the Orang lives practically entirely in the trees, building itself a platform bed of branches each evening and deserting it the very next morning. Just as he immortalized the langurs in "The Mark of the Beast" and the JUNGLE BOOKS so Kipling has given us two pictures of the Orang in fiction, Challong in "The Disturber of Traffic" and Bimi in "Bertram and Bimi." The former illustrates the power of the Orang to learn tricks; the latter is a horrible instance of the manner in which all anthropoids tend to become savage and dangerous when they grow up. The chief peculiarity of the jaws of the Orang is the enormous length of the roots of the teeth, a characteristic not shared by the Chimpanzee or Gorilla. There is a well marked similarity between the incisors, canine, and premolars in both jaws. Of the roots of the first premolar the anterior is much the smaller. The intermaxillary suture remains open throughout life.

The Chimpanzee, like the Orang, has been kept in captivity with some success. It also can be taught tricks. But as it grows older it develops a very uncertain temper, and may become really dangerous. Many of the performing chimpanzees at the Music Halls have had their teeth removed or broken on this account. There are certainly several varieties of this ape, and in some instances, as in the famous case of Barnum and Bailey's "Johanna," considerable discussion has been aroused as to whether the animal in question should be classed as Chimpanzee or Gorilla. As a matter of fact, it is stated by some that the Kooloo-Kamba is the result of a *mésalliance* between a Gorilla and a common Chimpanzee. The Chimpanzee has not so square a mouth as have the Orang and Gorilla. The canines are reduced and present no sex

difference in size. The first lower molars show greater or less fusion of the roots. The third lower molars are reduced. The intermaxillary suture closes about the time of the appearance of the permanent dentition, whereas in man it closes about birth. In both Orang and Chimpanzee the canine in the male is not cut

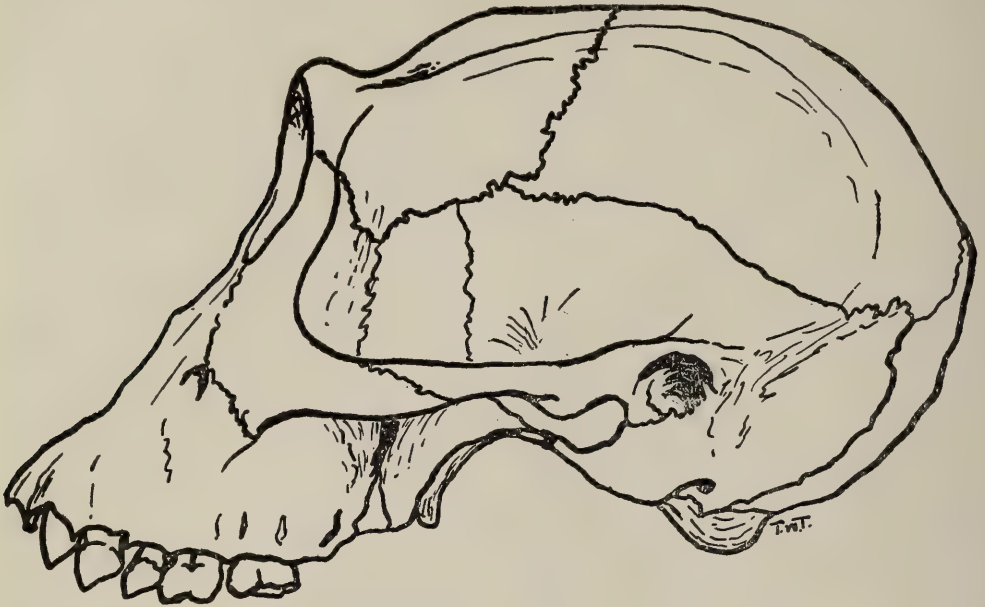


Fig. III. Left side of the skull of a young female Chimpanzee. Two-thirds natural size. Note that the canine is being cut, the second molar being fully erupted and that the third molar has not yet appeared. Unfortunately the two incisors are missing.

until the third molar has appeared. In the female of these apes it is cut after the second molar. A very typical example is figured here from the collection in the anatomical museum. There is no such difference in the milk dentition. "Sally," the Kooloo-Kamba was taught by the late Doctor G. J. Romanes tricks which quite possibly involved counting up to five. When in its wild state, the chimpanzee is said to gather together in large numbers for gambols. They then hoot and scream and drum with sticks on old logs. In the last mentioned performance they can use all four limbs at once, and as they usually do, the noise of the pow-wow is easily heard at a considerable distance. Of course, tales of Chimpanzees carrying off young girls are quite groundless.

Were it not for the fact that the anthropoids are few in number and are so closely related to man, it is doubtful whether the Gorilla would be ranked as a separate genus from the Chimpanzee. As already mentioned, there seem to be intermediate forms. The main differences in the jaws between the Gorilla and man may be summed up in the following manner:



The teeth are like those of man, but larger.

The jaws are square with a diastema in front of the upper canine.

As in the Orang, the intermaxillary suture remains open throughout life.

The first premolar is larger than the second.

The molars increase in size from before backwards.

In general, it may be said that a molar over 12 mm. in length is that of a Gorilla, and under 12 mm. in length is that of Chimpanzee.

Supernumerary masses occur frequently in the neighborhood of the premolar-molar junction.

The Gorilla in the wild state is a ferocious animal and never runs away as the Chimpanzee does. He has a habit of drumming on his chest and utters a wild howl, and these two characters, apart from minor differences in the external ear, seem to be the chief features distinguishing him with certainty from any form of Chimpanzee.

It is interesting to note that for most of our information concerning the habits of the Gorilla we are indebted to two American missionaries, especially to Doctor Savage, who gave the first scientific account of this animal in 1847. The features about the Gorilla which are of greatest evolutionary importance are the man-like proportions of the leg to the body, of the foot to the hand, and also of the size of the heel, the curvature of the spine, the form of the pelvis and the absolute capacity of the cranium. In this anthropoid alone is there physical evidence to show that it has become partially fitted for life on the ground, and not merely fitted for the arboreal life shared by the other anthropoids.

This concludes the study of the apes, which is the necessary preliminary to the investigation of man's place in nature.

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**Civil-Service Examination.**—The United States Civil Service Commission announces that senior students of reputable medical colleges will be admitted to the open competitive examination for medical interne in the Government Hospital for the Insane, to be held on April 8, 1914, upon filing applications showing them to be otherwise eligible; but in the event they attain an eligible average in the examination their names will not be entered upon the eligible register until they have furnished proof of actual graduation from such colleges.

## THE HISTORY OF THE PHYSIOLOGY OF THE CIRCULATION\*

By ROY G. PEARCE, A. B., M. D., Instructor in Physiology, Western Reserve University

Since Darwin pointed out the importance of the theory of evolution in the understanding of natural history, it has been the custom to ascribe the development of most of the arts and sciences to a like principle. It is not probable that a race of human beings sprung into existence in a day, at the spoken word of a god, nor is it more likely that we who are less than gods, can arrive at the full understanding of the structure and the functions of the body which has developed through the ages.

We have a biological theory which claims that many of the stages through which the race has passed in its development, can be recognized in the individual. In a like sense we can learn much of the basic principles of medical science by examining the work and theories of earlier men, appropriating that part which has shown to be true and laying aside that which contains errors.

We Anglo Saxons ascribe to the illustrious Harvey the discovery of the circulation of the blood and we are proud that such an honor is ours. Yet we should look into the paths which led Harvey to the completed theory for we find other people who claim for their country-men the distinction we give to ours, and we can count not less than five individuals to whom the discovery has been assigned.

In order to gain a true conception of the events which led Harvey to write his wonderful monograph, "An Anatomical Disquisition on the Motion of the Heart and the Blood in Animals", we must begin with the theories which were held previous to his time.

Erasistratus, who lived in the third century B. C., and was the founder of the Alexandrian school, believed that the arteries were filled with air, and that the veins alone contained blood. Galen, a great scientist of the second century A. D., showed the fallacy of Erasistratus. By a number of vivisections and dissections he showed that the arteries contain blood and evolved the following theory of the functions of the heart and the blood: "The food absorbed from the alimentary canal is carried by the blood to the liver where it is transformed into natural spirits.

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\*This is one of a series of lectures on the History of Physiology delivered before the Sophomore Class in an elective course, Feb., 1914.



The blood from the liver mixed with that in the vena cava is carried to the heart by an action similar to the ebb and flow of the tide, and passes in part from the right ventricle into the left ventricle through invisible pores in the interventricular septum. A part of the blood which serves to nourish the lungs passes by the pulmonary artery to the lungs and subsequently, a part of this may find its way into the left ventricle through the pulmonary veins. In the left ventricle the blood becomes mixed with air and by the addition of heat becomes imbued with vital spirits. In this change there is an ebb and flow along the pulmonary veins by means of which certain fuliginous vapors which have been formed by the fermenting activity of the heart are given off in the expired air. Arterial blood containing the vital spirits, on reaching the brain, generates the animal spirits which, pure, unmixed with air and blood, is carried by the nerves to bring about movement and the higher functions."

Note that he ascribed a double function to the pulmonary veins, i. e., to carry air to the heart and to carry off waste material. Apparently he admits that there may be a connection between the arterial and the venous systems in the lungs. These conceptions, however, were only a beginning to the correct interpretation of the function of the heart and the blood.

The teaching of Galen was accepted as gospel truth throughout the dark ages, a time when all learning was monopolized by the church, and when the written word carried more weight than facts apparent to the eye. At the beginning of the sixteenth century, all Europe was distraught with a new era of advancement. The reformation had taught that the church was not always infallible, and universities that were independent of the church were beginning to flourish. Many new facts in science, geography, and art were stimulating men to fresh endeavors. Printing had been invented the century before, and books were relatively cheap.

It was at this period that the great Vesalius lived. Vesalius was an anatomist, and we can give him little credit from a physiological standpoint, yet his work was so epoch making and his influence on later thought so profound, that it is well to review some of the events of the man's life and work.

He was a pupil of an uncompromising Galenist, Sylvius, whom we now know through the Sylvian fissure. Vesalius was not satisfied with his teaching and was soon carrying on dissec-

tions on the lower animals and on any human material he could obtain. He was convinced that Galen was not right in many things. Finding his way to Venice he attracted the attention of the ruling house and was appointed prosector at the University at Pisa, where he was later made Professor of Anatomy. Here he labored five years, teaching by lectures and demonstrations the anatomy of the body as he found it. At first he tried to read Galen to his students and to use dissections only to illustrate the text. He found this to be impractical and began to use new and original methods, thereby attracting hundreds of students.

This disregard for authority brought him many enemies and made it very difficult for him to obtain material. In 1543 he published his great work, "The Structure of the Human Body," which is an anatomy pure and simple. The physiological discussions are short and for the most part, are mere copies of Galenic teaching. Yet it differed from other texts in that it teaches anatomy from the standpoint of the dissector and the experimenter and has as its basis that foundation upon which all good scientific research must rest, i. e., patient, honest observation. The illustrations have been credited by some to Leonardo di Vinci, and are good specimens of anatomical drawing.

In the first edition of his work, Vesalius hinted his disbelief in the permeability of the interventricular septum, and in a later edition was open in his scepticism. He did not directly advance the physiology of the circulation, but credit is due him in as much as he removed from his pupils and successors the overshadowing influence of Galen and the church.

Tired of the continued rebuffs and the criticism he had provoked, he removed to Pisa, where he gave a course of lectures. Soon afterward, he accepted service under Charles V. of Spain and as a court physician ended the life that had promised so much in the way of advancement of medical science.

It was, however, not only the pupils of Vesalius who were searching for an explanation of the function of the heart and the blood vessels, for we find a Spanish monk, a contemporary of Vesalius, who had the courage to deny the permeability of the septum of the heart and to describe the lesser circulation. This was Michael Servetus, who is known as the first Unitarian, and who was, in turn, an astronomer, a physicist, a botanist, a physician, and an anatomist, but above all a theologian. He believed that a knowledge of God could be furthered only by a knowledge



of nature and of man and introduced into his theological works discussions of natural sciences. His work on the "Error of the Trinity" was the first exposition of the Unitarian belief, and his "Resitutio Christianismi" contains the first report of the lesser circulation. Shortly after the publication of this work, he was betrayed to the Catholic authorities for his heresy by John Calvin, whose enmity he had provoked by the most friendly criticism of some of Calvin's writings. He then sought refuge in Geneva, where he thought he would be safe from religious persecution. Geneva was Calvin's stronghold and in place of the welcome that he expected from the hand of his brother reformer, he found a martyr's death in a slow fire which consumed him and almost the entire edition of his work.

In the description of the lesser circulation, Servetus gives proof that the ventricular septum is not permeable, and asserts that all the blood from the right side of the heart must pass through the lungs to reach the left ventricle, from which it is passed on through the body.

Just what bearing the work of Servetus had on the discovery of Harvey, we cannot say, but it is certain that priority of publication gives to the Spanish monk the honor of being the discoverer of the lesser circulation. Six years after the publication of the work which cost Servetus his life there appeared a posthumous work of Realdo Columbo of Cermona, entitled "De re Anatomica," in which there is a description of the lesser circulation and a confirmation of the impermeability of the ventricular septum. Columbo had been appointed to succeed Vesalius at the post, at Padua, and was later called to Pisa, and then to Rome, where he died in 1558. He was a very clever politician and in spite of his rather superficial education gained a great reputation as an anatomist. He has been accused of plagiarizing the work of Servetus and it is possible that he might have read the work. There are, however, facts which tend to prove that Columbo arrived at his conclusions independently. Servetus published his discovery in a religious work which suffered the ban of both the Protestant and Catholic churches and, moreover, anatomists of the time do not mention Servetus but Columbo as the discoverer of the lesser circulation.

In 1571 Andrea Cesalpinus, probably a pupil of the great Vesalius when the latter was at Pisa, published his "Peripeteticus Questionum," in which he describes the circulation of the

blood. He assumes that there is a constant passage of blood from the arteries into the veins through anastomoses which he called "Vasa in Capillamenta." This constant motion of the blood he called "Circulatio." He was the first to recognize the essential difference in the pulmonary veins and arteries. He called attention to the fact that the blood pressure in the arteries was higher than in the veins and as an explanation for this, says that the tissues offer a resistance to the flow of blood. Twelve years later, in a botanical work, he confirms his earlier observations, saying that the blood is carried by the veins to the heart and then to the lungs, from which it is returned to the left side of the heart and thence to the entire body. In 1593, in a work entitled "Questionum Medicarum," he gives experimental proof for his theory. First he shows that after cutting a vein, venous blood appears, and if the hemorrhage is severe enough, the blood becomes lighter till it assumes the color of arterial blood. This appeared to him as proof that there is a connection between the arteries and the veins. Secondly he showed that on clamping a vein, it swelled distally from the heart, and not as one would expect from the older teaching on the side towards the heart. That Cesalpinus did not mention the valves in the veins in his arguments is to be wondered at, since these structures had been discovered in the middle of the century and were quite fully and accurately described by Fabricus in 1571. Neither of the men understood the meaning of the valves, and if Cesalpinus had grasped their function he would have very nearly completed his argument for the circulation. This brings us to within five years of the time when Harvey was a student under Fabricus at Padua.

William Harvey was born at Folkestone, England, in 1578, a son of well-to-do parents, who gave him a common school education and later sent him to Cambridge, where at the age of 19 he received his B. A. degree. In as much as the students of medicine of the better class preferred to attend the famous medical universities on the continent, Harvey went to Italy and for five years studied under the masters at Padua. Among his teachers was Fabricus, whom we have mentioned as the discoverer of the valves of the veins. He received his M. D. from Padua and returned to London, where he was soon recognized as a great anatomist and surgeon. He was appointed on the medical faculty of the College of Physicians and later was made the King's physician.



His fame rests chiefly on his work, which he published in 1628, entitled "An Anatomical Disquisition on the Motion of the Heart and the Blood in Animals." Harvey, in his excellent monograph, shows himself to be a master with a penetrating intellect and a versatility of resource which constitutes the genius. With these he combined a persistency of purpose and a disregard for accepted truths which at that time was appalling. He accepted as facts only those supported by evidence, and appreciated the value of experimental method as the only way to arrive at the truth. He was not only interested in the human mechanism, but constantly tried to learn by comparative anatomical and physiological methods, the underlying principles of the heart and the blood. Nor was his endeavor directed towards the elucidation of the blood system alone, for we find many other tracts and writings which indicate the range of his investigations. He made an important research and published a treatise on the development of the animal.

Quoting from a translation by Bowie, after discussing the things which led him to propound the theory of the circulation, Harvey says: "I frequently and seriously bethought me, and long revolved in my mind what might be the quantity of blood which might be transmitted and in how short a time its passage might be effected, and the like. But not finding it possible that it might be supplied by the juices of the injected aliment without the veins on the one hand being drained, and on the other hand, without the arteries getting ruptured through the excessive charge of blood, unless the blood should somehow find its way from the arteries into the veins, and so return to the right side of the heart, I began to think that there might be a motion as it were, in a circle. Now I afterwards found this to be true"—the blood vessels are therefore the canals and the agents that transport the blood, and they are of two kinds, the cava and the aorta; and this is not for the reason that there are two sides to the body as Aristotle has it, but because of a difference in office, not as commonly said in consequence to any diversity of structure—but solely in virtue of their distinct function and uses." Later in giving the points on which he bases his theory he says, "the confirmation of which being stated, I conceive that the truth I contend for, will follow necessarily, and appear as a thing obvious to all. First,—the blood is incessantly transmitted by the action of the heart from the vena cava to the arteries in

such quantity that the whole must pass through the organ; secondly,—the blood under the influence of the arterial pulse enters and is impelled in a continuous stream through every part of the body; thirdly,—the veins likewise incessantly return the blood to the heart from parts and members of the body.”

In order to prove his first point he calls attention to the fact that it would be impossible for the food to furnish all the blood that is expelled by the heart at each systole, without there being some method for the blood to be returned to the heart. The second point he proves by the same method used by Cesalpinus, namely, that the direction of the blood stream is *from* the heart in the arteries, and *towards* the heart in the veins. And for proof of the third point, he calls attention to the valves of the heart and blood vessels, which valves furnish strong proof that the direction of the blood flow in the veins, is towards the heart.

Harvey's arguments, insofar as they are concerned in the mechanical aspect of the blood stream, are essentially physical. He did not, as did the earlier anatomists, mix his arguments with speculative functions of the blood and the respiration, and although he states that he made many experiments along these lines, he refrained from putting them into the work, for the sake of keeping foremost the easily demonstrated principles.

Foster says that although he did nothing to disprove the presence of spirits of different nature in the blood, hereafter the importance of the view was greatly altered, since the whole theory of the different spirits must rest on the double function of the heart.

The importance of the discovery of the circulation does not rest so much on its being the true explanation of the function of the heart and the blood vessels, as on the fact that it paved the way for a rational conception of the manner by which the body is nourished and it led to a chemical appreciation of the use of the blood.

In the consideration of the circulation it is well to include the work done on the lymphatic system, which had its beginning at the time of Harvey. It had always been assumed that by some means the food we take in, is transformed into blood, but the manner in which this is accomplished had always been obscure. The teaching of Galen required that the nourishing part of the food be taken up by the blood and carried to the liver where it



was changed into natural spirits. Although Galen himself had observed vessels which contained a milky substance, in the mesentery of the sheep, and mentions that Erasistratus had also observed them, nevertheless he considered them part of the arterial or venous system.

Gaspar Aselli, professor of anatomy at Pavia, while doing a vivisection experiment, noticed in the mesentery of the animal, some white vessels from which, when pricked, flowed a milky substance. He concluded that this was the chyle from the intestine, and, biased by the earlier teaching that all the food must go to the liver before it could be changed into blood, traced the vessels to the liver. Thirty years later a Frenchman, Jean Pecquet, traced the lacteals to the thoracic duct which was found to empty into the subclavian vein. Harvey's work appeared at the time of the productions of these men, and although the facts that are presented by their discoveries would have aided his argument in favor of the circulation, he persistently refused to accept their work.

There still remained many things to be finished before the circulation described by Harvey was entirely clear. As yet there had been no demonstration of the capillaries. Harvey and his predecessor, Cesalpinus, could only postulate such structures and were vague as to whether the blood vessels were a closed or an open system of tubes at the periphery. It was only through the aid of the microscope in the study of animal structures that this could be demonstrated. Among the men who were using the microscope at this time was an Italian, Marcello Malpighi, who observed in a frog's lung the passage of blood from the arteries into the veins, and describes the experiments in a letter to Borelli, an Italian physiologist of that period, as follows: "While the heart is still beating, two movements in a contrary direction are observed with difficulty in the vessels, so that the circulation is clearly laid bare, and thus by this impulse the blood is showered down in minute streams through the arteries, after the fashion of a flood, to the end of the more conspicuous branches on into the several cells. The blood thus repeatedly divided, loses its red color, and is carried round in a sinuous manner. Finally it is poured out on all sides until it approaches the walls and angles and the absorbing branches of the veins. Hence I might believe that the blood itself escaped into empty space and was gathered up by a gaping vessel and by a structure

of the walls." With the aid of the microscope he was delighted to find as he says, "that there appeared a network made up of a continuation of the arteries or the veins, which in truth connected the two." He was able to demonstrate this better on a dried lung, which had been preserved full of blood.

After Malpighi, many attempts to extend the observations to warm blooded animals were made. A hundred years later the capillaries were observed by Spallanzani, who says, "having pondered over the matter for a long time, I finally thought of the vasa umbilica of the developing chick as being suitable for such observations." When by the aid of the microscope and the direct sunlight, he was able to see the blood stream he says that he cried out with joy, "I have found it."

Now the idea that there is a complete circulation of blood through a closed system of tubes was fully developed, and the idea of nutrition from then on, must conform to this fact. Since then the development of our ideas of circulation, respiration, and nutrition has been dependent on the knowledge of the circulation as developed by Harvey and his followers.

The hemodynamical part of the physiology of the circulation was developed by Stephen Hales, who was born a few years after Harvey's death. Hales was educated for the ministry at Cambridge, where he showed the greatest interest in natural science. He was a man of independent means and preferred to spend the greater part of his life in the small parish of Teddington in order that he might have more time to devote to his investigations in natural science. His life is one of the most interesting of any of the old physiologists, for it presents such a variety of interests. He had membership in several of the important societies, and held many positions of honor and trust, showing that his works were appreciated at their true value by his contemporaries. His works embrace a very large field, including chemistry, botany, physiology, medicine, and public hygiene, not to mention sermons and tracts.

In 1719, Hales reported some experiments on the effect of the sun's heat on the flow of sap in trees, and was urged by the Royal Society to continue the investigations. In 1727, he published a work entitled "Vegetable Staticks" bearing on the sap in vegetables, which was so well received that he was encouraged to add a volume called "Statical Essays", in which he published the accounts of the experiments on blood pressure. In this work



also appear experiments which show the failure of some much advertised medicines to dissolve kidney and bladder stones. This work was translated into German, Italian and French. The distinguishing feature of these essays is that they were all efforts to describe the phenomena of nature in quantitative terms, rather than the qualitative manner previously employed. Hales was also the inventor of a system of ventilation which did a great deal to improve the conditions in hospitals and prisons. The system was adopted by many ships and was the means of greatly reducing the mortality of negroes on slave ships. He devised methods of preserving meats on long voyages, for which he was voted the Copley medal in 1739.

I will quote from his classical report his account of the experiments on blood pressure, for his introduction is so characteristic. "What I had first intended only as an additional observation and experiment to the first volume has grown to the size of another volume, so fruitful are the works of the great master of nature in rewarding, by further discoveries, the researches of those who have pleasure therein. \* \* and though our methods be tedious, yet our abilities can proceed no faster; for as the author of 'The Procedure of Human Understanding' says 'All the true real knowledge we have is entirely experimental, in so much that, however strange the assertion seems, we may lay it down as the first fundamental and unerring rule of Physicks, that it is not within the compass of the human understanding to assign a purely speculative reason for any of the phenomena of nature.'"

In giving the reason why he was led to perform the classical experiment, which is well known to us all, he states that many had attempted to make estimates on the force and the flow of blood, but that their conclusions were based on insufficient data and were therefore incorrect. He wondered if the hydraulic pressure of the blood was sufficient to account for muscular movements, and so devised the method known as Hales Manometer to measure the blood pressure. He describes the experiment as follows:

"In December I caused a mare to be tied down on her back on a garden gate. She was about 14 hands high and about 14 years old. She had a fistula on her withers and was not very lean or yet very lusty; having laid bare the left crural artery about 3 inches from her belly, I inserted into it a brass tube whose bore

was one-sixth of an inch in diameter, and to that by means of a trachea of a goose I connected another brass tube of nearly the same diameter, which was nine feet long. Then untying the ligature of the artery, the blood rose in the tube eight feet three inches, perpendicular above the level of the left ventricle of the heart; when it was at full height it would rise and fall at each pulse 2, 3 or 4 inches."

He tested the effect of hemorrhage on the same horse and found that one could take large quantities of blood without materially affecting the blood pressure.

He says he used the method on several horses, sheep and dogs. He calculated the amount of blood in the body of a horse and the size of the heart, and from this data he calculated the velocity of the blood, and the total pressure sustained by the heart at the beginning of each systole. He possessed a very clear conception of the nature of blood pressure and the factors which maintain it, for he describes accurately the function of the elastic coat of the arteries, the resistance offered by the capillaries, and the decrease in the velocity of the blood in the smaller vessels because of their total increase in volume. He made some observations on perfusing the splanchnic vessels with alcohol, quinine, and other drugs, and in a manner, really describes the phenomena of constriction and dilatation of the arteries.

In 1664, a few years after the death of Harvey, Stenson had shown that the heart was not made of glandular tissue, but rather of muscular tissue. Of course these microscopical observations showed that the heart could have no part in the elaboration of the blood.

That the nerves of the heart did not determine the action was demonstrated by the Swiss physiologist, Haller, in 1757, and that the work of the automatic heart is regulated through its nerves was demonstrated by the experiments of the Weber Brothers in 1845, who discovered the cardiac action of the vagus nerve.

While there have been hundreds of physicians and physiologists who have added much to our knowledge of the circulatory system, whom we have not mentioned, we believe that from a medical point of view there is no work more interesting than that of Claud Bernard's, the great French physiologist of the last century. His discovery of the vaso motor nerves and contributions to their physiological functions must be mentioned.



The great German physiologist Johannes Müller, whose physiology appeared in 1839, recognized two kinds of muscles, i. e., smooth and striated. He discusses at great length whether arteries possess contractibility or not, and decided in the negative. Henle and Stilling, arguing from the purely theoretical standpoint, concluded that the sympathetic nerves supplied the muscles of the arteries with motor nerves. Later Kolliker showed that the plain muscle tissue was composed of spindle cells.

Bernard, while studying the influence of the nervous system on the production of heat, cut the cervical sympathetic nerve in the rabbit, and immediately noticed an increased heat production in the ear, which he says was accompanied by an increase in the blood flow. However, in his report he failed to show any relationship between the two phenomena.

Later Brown Sequard, who was then in America, applied the electrical stimulus to the cervical sympathetic and observed the vaso constriction of the vessels of the ear. A few years later, Bernard demonstrated vaso dilator fibres in the corda tympani, whose secretory effect on the submaxillary gland had been discovered by Ludwig.

There is still much of interest in the history of the development of the circulation, but we have indicated the foundation on which our knowledge of the system is built. What has been done since Galen planned the building, whose foundations were completed by the united help of Vesalius, Servetus, Columbo, Cesalpinus, and the master workman, Harvey, has been on the superstructure. Now and then some workman appears who, because of brilliancy of plan or cleverness of technique is able to build his part more pretentious than the rest.

#### Literature on the History of the Circulation of the Blood:

Foster, Sir Michael: *History of Physiology*. Cambridge, 1901.

Luciani, Luigi: *Physiology of Man*, translated into German by Baglioni and Winterstein.

Foster, Claude Bernard: *Master of Medicine series*, 1899.

Power, D'Arcy: *Wm. Harvey, Master of Medicine series*, 1897.

Dawson, Percy M.: *Stephen Hales, the Physiologist*, John Hopkins Hospital Bulletin, Vol. XV, 1904.

Boruttau, Heinrich: *Handbuch der Geschichte der Medizin*, 1903. Herausgegeben von Neuburger und Pagel.

## RADIUM\*

By WILLIAM THOMAS CORLETT, M. D., L. R. C. P., Lond., Professor of Dermatology and Syphilology, Western Reserve University, Cleveland

At this time it seems especially opportune to consider the several forms of radio-activity employed in medicine. In this consideration it may be well to review cursorily the therapeutic history of two of the principal forms of this energy, viz: the Finsen light and the Roentgen Rays.

### Actinotherapy

Working independently, Finsen in 1894, began a series of experiments with concentrated applications of light deprived of heat rays and demonstrated that certain bacteria might be destroyed by concentrated light, which led him to apply it in the treatment of certain cutaneous diseases, notably lupus vulgaris. It was further demonstrated that to the ultra violet rays this action was due. An apparatus was later devised in which these rays were utilized which was known as the Finsen lamp.

We are all doubtless familiar with the wonderful therapeutic effects first attributed to the Finsen light. It is also to be remembered how, on closer investigation, and more extended experience, it was found to be of service in a certain number of cases only, and in a limited number of diseases.

In personal observations made at the Finsen hospital, Copenhagen, in 1903, I found the best results obtained in lupus erythematosus, lupus vulgaris and naevus. As in one-third of the cases of lupus vulgaris the disease first appeared in the mucous membranes, notably of the nose, and in even a larger percentage of cases involved this structure during its course, it was found that the Finsen light could not be applied to these locations, and to complete the cure topical applications, such as iodine were less successfully employed.

In cancer the Finsen light was serviceable in a certain number of cases, especially in the milder forms and during the early period; but as a routine treatment for cancer it was less reliable than other measures at our command. Briefly, in these observations at Copenhagen, I could not see that the Finsen light accomplished more than could be done by the Roentgen

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\*Read before the Lakeside Hospital Medical Society, Jan., 1914.



Ray, except in lupus erythematosus and especially in certain naevi, which I think were better treated by the Finsen light. The costly and complicated apparatus necessary for the Finsen light treatment, together with the skilled nurse required, rendered the advisability of its use doubtful except in large, well regulated institutions.

In subsequent visits these first impressions have, I believe, been confirmed.

### Radiotherapy

The discovery of what were called X-rays by Roentgen in 1895 was soon hailed with delight by the medical profession and even the public press augmented its curative properties far beyond what was accurately observed.

In this hospital at a very early period of this activity we used the Roentgen rays for various diseases and with some benefit. I now recall an indolent cancer of the cheek in an aged woman, which has remained cured—at least it had not recurred when the patient was last heard from. Other cases were benefitted and in some the disease seemed to be arrested in its development. But no one today who has had an extensive experience claims for the Roentgen rays any constant, efficient, specific action against the cancerous process; valuable, it is true, sometimes curative but not a specific. Furthermore, with experience, it was found that much injury was sometimes done from exposure to the Roentgen rays. Even the operators themselves who did most in developing and ascertaining the real therapeutic status of these rays, were not spared. The last of the group presented himself at the meeting of the American Dermatological Association in Boston a few years ago, with multiple epitheliomata on the hands resulting from exposure to the Roentgen rays. The other operators who were similarly affected had already succumbed to cancer induced by exposure to this potent influence.

Today the Roentgen rays are used comparatively infrequently by physicians who treat diseases of the skin most successfully, although they have a certain beneficial action and are to be regarded as a valuable aid, an addition to our armamentarium in fighting disease. The most notable field of usefulness at the present time is in ringworm and the parasitic mycoses, also in certain inoperable cancers or when one is not sure of having removed all portions of a malignant growth. In such cases

it is used with some hopes of arresting the deadly process and sometimes even of cure. Concerning their therapeutic value the Finsen light and the Roentgen rays may be likened to calomel and ipecac, both valuable on occasion and the pharmacopoeia would not be considered complete without them, but no one would now think of setting himself up as a calomel specialist or announcing that his practice was limited to treatment by ipecac.

In radium we have a substance allied in physical properties and furnishing a similar therapeutic agent which at first was thought by some to be far superior to the two mentioned, but which experience is placing in a niche which it is probably destined to occupy in the future.

In 1896 Bacquerel observed certain radiations resembling the X-rays, in uranium. Curie and Bémont in 1898 obtained what was considered a metallic chemical element from pitchblend, a uranium mineral. On the death of the former his wife continued his investigations. Bacquerel, in carrying a small piece of radium in his vest pocket, observed about a fortnight later a severe inflammation on the adjacent skin. This was the first demonstration of radium's caustic or destructive action. Since the emanations from radium resemble those of the X-rays and as the latter is known to possess certain therapeutic properties, it was thought that the new substance, radium, might likewise be a serviceable curative agent. Since the Bacquerel burn was first observed, now nearly 15 years ago, radium has been the subject of therapeutic investigation. Foremost in this work stand the names of Wickham, Degrais and Abbe.

I have been interested in observing the effects of radium especially in the treatment of diseases of the skin, both of a simple and malignant nature, since the *Laboratoire Biologique du Radium* in Paris was opened.

A few years ago its founder, Doctor Louis Wickham, was invited to lecture in this country on the subject of radium, and a few Cleveland physicians had the privilege of hearing him give an interesting talk on his work with this substance, illustrating it with numerous colored plates and photographs. Doctor Wickham made a favorable impression on his audience by his definite, although conservative, claims for radium.

Last summer, while visiting one of the large clinics in Berlin, I was especially impressed by the favorable results obtained by radium in certain vascular conditions, especially naevi, and



from what I had previously seen, covering a period of several years, by experienced workers, I believe it may be said with assurance that it has a definite therapeutic value. First, in certain naevi it is more effective in its action than the carbon dioxide, and less liable to be followed by the disfiguring results I have seen in three unpublished cases. In inoperable cancer, or after as much of the cancerous growth has been removed as is possible with the knife, it may be used to advantage. In positions, too, inaccessible to the Roentgen ray it may be found of even greater value than this substance. One of the strongest claims made by Wickham was that in some of the cases demonstrated, life had been prolonged and pain alleviated three, four or even more years by the use of radium. He did not claim it as a specific in all cases of cancer nor equal to the knife when the entire growth could not be removed. The claim that life might be prolonged and suffering obviated, that it could aid other means, he thought of sufficient importance to regard it with favor, and as a valuable therapeutic agent.

The unfortunate publicity of late, which has resulted from sensational newspaper articles, has done more to stimulate fraudulent radium institutions than any paid advertising could do, because it seems so disinterested and spontaneous. It is true that occasionally one sees a case of cancer that is arrested and may be cured by the use of radium. Such a case came under my notice about a year ago. But to herald it as a panacea and cureall for all cases of cancer, is to remove it from the sober field of fact to the uncertain domain of phantasy. In this course I can see for radium not the good of which it is capable but possible harm and untold disappointment.

3618 Euclid Avenue. \_\_\_\_\_

**Aspirin Idiosyncrasy.**—E. N. Reed, Clifton, Ariz. (*Journal A. M. A.*, March 7), reports the case of a patient who, after taking a capsule containing 5 grains of aspirin for a cold was taken with vomiting in about half an hour, followed by a "stiffness" in the throat making him think he was developing a tonsillitis. An hour and a half after taking the capsule his face was swollen and cyanotic, the eyelids edematous and almost closed and the conjunctiva injected, the whole face swollen, the breathing was labored and asthmatic, the nasal mucosa gorged, preventing nasal breathing, the buccal mucosa and pharynx were dark red and swollen, the uvula twice its normal size. The pulse was 120, soft and full, temperature 98. The breathing was such as one might expect with edema of the glottis. No treatment was instituted; the symptoms largely disappeared in six hours, but there was a fine, papular rash on the trunk the next morning. The patient reported a similar experience about a year before, lasting about five hours, after taking a capsule of  $2\frac{1}{2}$  grains each of aspirin and phenacetin.

## TREATMENT OF ABSCESS OF THE NASAL SEPTUM

By W. J. ABBOTT, M. D., Cleveland

In the treatment of infections which go on to abscess formation, general surgery has laid down the rule of good drainage, generally secured by free incision with evacuation of pus followed by aseptic or antiseptic measures. This has been varied at times on account of local conditions due mostly to the condition of the blood supply to the infected region, i. e., where there is a very good blood supply or where the blood supply can be readily increased on the principles of the Bier method, the incision is not necessarily made as extensively, so long as one is able to evacuate the collected pus and clean out the abscess cavity from time to time. In any case it is important that nothing be done to interfere with the natural blood supply but if it can be increased so much the better.

In the case of abscess of the septum nasi, one finds a collection of pus between the perichondrium and the nasal cartilage. This collection has separated these two layers, so depriving the cartilage of its blood supply in the involved region, and surgeons—general as well as special—know that cartilage denuded of its perichondrium soon undergoes degeneration. This is particularly true if the cartilage, as well as having its blood supply interfered with is bathed on both sides with pus. As the great majority of abscesses of the septum are caused by trauma a hematoma is formed between the cartilage and the perichondrium by rupture of the vessels of the latter. This collection of blood becomes infected and in about two to four days after the injury there is sufficient pus-formation to cause general symptoms, pain in and around the nose, elevation of temperature and probably a chill. This means that by the time the patient with the abscess is seen, the cartilage at least in part has been denuded of its perichondrium for some days and has been deficient in blood supply, although the serum by which it has been surrounded is probably a very good preservative at least until the infection sets in. However, if the infection is allowed to persist for any length of time, all the septal cartilage may have its perichondrium dissected off allowing complete destruction of the cartilage and hence falling of the tip of the nose. This produces a different kind of deformity than that generally seen in leucic cases, but none the less unsightly.



The treatment consists in removal of all collected material, blood and pus, as complete a disinfection as possible, restoration of the tissues to their original site, care being taken to avoid anything that will interfere with the blood supply to the part which is exceptionally good. This in the writer's experience can best be done by evacuation of the pus by means of a suction apparatus (a good syringe will do) with a medium-sized needle, washing out the cavity with a solution of sodium chloride, boric acid, carbolic acid (0.25 to 0.50 per cent) cyanide of mercury (1 to 4000) or potassium citrate, two or three times at the one sitting. No packing is necessary to hold the layers of mucoperichondrium in contact with the septal cartilage, for when the collected fluid is aspirated there is no space left. The packing that is necessary when, one makes free incision not only interferes with the ventilation and drainage of the nasal spaces, but also to a certain extent may interfere with the blood supply.

The results by this method are very satisfactory and more rapid than by free incision, drainage and tamponading. The reasons for this are probably that the evacuation of pus is sufficiently good that the blood supply is able to look after any infective material left and the nose returns to its normal function inside of twenty-four hours. Probably a small collection will be present the day after, but not enough to obstruct nasal breathing. A repetition of the original treatment will probably be all that is necessary.

Of these cases, the writer has seen nine in his private practice. The ages varied from nine to thirty-two years. All cases had a traumatic origin and all were seen at least three times. On the second day aspiration was tried but little or no fluid was secured. One case had ruptured on the left side when first seen; fluid used in the right side could not be washed through to the left. And the infection of the left side did not re-infect the right side, that is, one was safe in assuming that there was no connection between the two sides. The right side was treated once. Two days later it was well while the left side was treated daily for a week with injections and tampons.

The results in all cases were good and were rapid as compared with results where the free incision has been used.

**Civil-Service Examination.**—The United States Civil Service Commission announces an open competitive examination for medical interne, for both men and women, on April 8, 1914, at the places mentioned in the list printed hereon. From the register of eligibles resulting from this examination certification will be made to fill vacancies in this position in the Government Hospital for the Insane, Washington, D. C., at \$900 per annum, with maintenance, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The positions are tenable for one year, and pay \$75 a month and maintenance. During the year, however, a postgraduate course in mental and neurological diagnostic methods is given, an examination is held, and promotions to the next grade, junior assistant physician, are made. Beyond this there is regular advancement for men whose services are satisfactory. The Government Hospital for the Insane has over 3,000 patients and about 800 employees to care for. In addition to the general medical practice offered, the scientific opportunities in neurology and psychiatry are unsurpassed.

As considerable difficulty has been experienced in filling vacancies in the position of medical interne in the Hospital Service during the past several years owing to the limited number of eligibles available, qualified persons are urged to enter this examination.

Competitors will be examined in the following subjects, which will have the relative weights indicated:

Subjects.	Weights
1. Letter writing (the subject matter on a topic relative to the practice of medicine).....	5
2. Anatomy and physiology (general questions on anatomy and physiology, and histologic or minute anatomy).....	10
3. Chemistry, materia medica, and therapeutics (elementary questions in inorganic and organic chemistry, the physiologic action and therapeutic uses and doses of drugs).....	15
4. Surgery and surgical pathology (general surgery, surgical diagnosis, the pathology of surgical diseases).....	20
5. General pathology and practice (the symptomatology, etiology, diagnosis, pathology, and treatment of diseases)....	25
6. Bacteriology and hygiene (bacteriologic methods, especially those relating to diagnosis; the application of hygienic methods to prophylaxis and treatment).....	10
7. Obstetrics and gynecology (the general practice of obstetrics, diseases of women, their pathology, diagnosis, symptoms, and treatment, medical and surgical).....	15
Total.....	100

Graduation from a reputable medical college is a prerequisite for consideration for this position.

Applicants must not have been graduated previous to the year 1909 unless they have been continuously engaged in hospital, laboratory, or research work along the lines of neurology or psychiatry since graduation, which fact must be specifically shown in the application.

Both men and women will be admitted to this examination. Applicants must be unmarried.

Age, 20 years or over on the date of the examination.

The examination is open to all persons who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the list printed hereon, for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington in time to arrange for the examination at the place selected by the applicant. In applying for this examination the exact title as given at the head of this announcement should be used.



# The Cleveland Medical Journal

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Short notes upon clinical experiences or reports of interesting cases will be welcomed by the editors.

Original articles are accepted for publication by this Journal only with the distinct understanding that they are contributed solely to this Journal and will not be published elsewhere as original.

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## EDITORIAL

### The Weber Memorial Fund

Elsewhere in this issue appears a notice of the so called Weber Memorial Fund Memberships which are being offered by the Medical Library Association. The Council of the Library has decided to use the income of the fund subscribed by friends of the Late Doctor Gustav C. E. Weber, to provide memberships in the Library for young men who otherwise might not take ad-

vantage of the opportunities for reading and study that the Library offers.

Men fresh from hospital appointments are at a stage in their career when they have more time for research and investigation than is available in subsequent years, and to carry on such work access to a well equipped library is indispensable.

It is hoped that this scheme will not only help young men in the early years of their career, but that it may interest such men later on to become regular members in an institution that deserves the heartiest support of the profession.

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### Report of the New York Milk Committee

To all readers of *The Journal* interested in the fight waged against Infant Mortality, the following report of the New York Milk Committee will show in statistical form results of work done during the past seven years as compared to similar statistics reported from forty-five other cities in the United States.

According to the Seventh Annual Report of the New York Milk Committee, just issued, 41,000 baby lives have been saved in New York City by the systematic welfare work carried on during the last seven years by cooperating public and private agencies. During that time 950,000 babies have been born in New York City. If the infant death rate of the five years previous to the beginning of this work had prevailed there would have been 150,000 infant deaths instead of the 109,000 which actually occurred. On the other hand, if New York's low death rate of 1913, i. e., 101.9 per 1,000 births, had prevailed throughout the seven-year period, only 96,000 babies would have died out of the 950,000 born.

The Committee points out that this record is not due to favorable weather conditions nor to other general accidental causes. Returns from the larger cities throughout the country, for 1913, published in tabular form in this report, show that while New York made a further reduction in 1913 in the actual number of deaths over its low record of 1912, Chicago, Philadelphia, Cleveland, St. Louis, Baltimore, Pittsburgh, Detroit, Buffalo, New Orleans and Toledo, all show an increase.

The Milk Committee was organized as one of the pioneers in New York City's campaign. "The Committee's activities, and the activities of all public and private agencies," says the report, "are now based upon a program calling for clean and safe milk and the systematic education of mothers in matters pertaining to feeding, hygiene and sanitation."

In its work for a better milk supply 1913 has been a year of signal achievements for the Committee. Its National Commission on Milk Standards, composed of seventeen experts from all parts of the country, completed its work of standardization and milk grading with such success that during the year its findings were endorsed by the American Public Health Association, the American Veterinary Medical Association and the International Milk Dealers' Association. "The deep significance of all this," says the report, "is that instead of a state of confusion and diversity of direction, this country and Canada will henceforth have the same objective points in local milk regulations because of general agreement on a working program." This Commission's report has been used during the year as a basis of clean milk campaigns conducted by public and



private agencies all over the country. Important changes have been brought about in New York City's regulations to make them conform closely to the National Commission's standards.

Another important step taken by the Committee, during the year, was the calling together of representatives appointed by the governors of the eastern and middle states to discuss the question of uniform state regulation of the milk supply. As a result of this conference state control bills were introduced in several States. The bill prepared by the New York Milk Committee and introduced in the New York State Legislature, while defeated by a small margin aroused so much public sentiment that it will be reintroduced this winter, with strong prospects of success.

The Committee also held a conference to consider a method of fixing the market price of milk to the producer, which resulted in the formulation of plans for a practical working agreement to this end.

Independent investigations have been carried on during the year by the Committee dealing with: Hospital milk supply; transfer of milk on street; milk supplied at school lunches; shortmeasure milk bottles; icing of milk in transit, with special reference to broken car lots; prosecutions of dealers; and milk-born epidemics of typhoid fever in Manhattan and of septic sore throat in a section of the State in which is produced the milk supplied to the infant milk stations of New York City. Active measures for correcting the evils brought to light by these investigations are now under way.

In its work to save the lives of infants, by systematic education of mothers in matters pertaining to feeding, hygiene and sanitation, the Committee's most important achievement during the year was the completion of its comprehensive experiment in the prenatal education of 3,300 mothers. In this experiment the stillbirths and the deaths under one month were reduced approximately twenty-five per cent. This work was carried on by visiting nurses in the homes of the expectant mothers. This method of conducting the work has been adopted by the Department of Health of New York City, as a result of the New York Milk Committee's demonstration, and will form a part of the educational system of municipal milk stations hereafter.

The Committee also began a demonstration with a public Health Center which it believes will revolutionize methods of carrying on public health work in general, and infant welfare work in particular, in large cities. In this experiment the Committee attempts to show: That public health work of a large city should be centered around local points in convenient districts; that the present infant milk station should have the scope of its work so expanded as to become that center; that it is impossible to deal with the infant welfare problem without taking into account the interests of the entire family and the community; that the so-called "milk station" as an educational center can be conducted successfully without the selling of milk in connection with its work. The Center established by the Milk Committee, as a demonstration, is located in the old Syrian quarter of Manhattan Island. It already has an enrollment of over 200 families. Doctors and nurses are in attendance every weekday and the Center has become a bureau of advice and help in all family perplexities in the district.

During the year the Milk Committee has given medical advice and attention at its centers to 8,088 mothers and babies. It has instructed mothers in their homes through 26,650 visits made by physicians and nurses. It has printed and distributed 300,000 educational circulars and 16,500 booklets and other educational matter.

The New York Milk Committee held the first Better Babies Contest in New York City this last year and has cooperated with other agencies in twelve other contests.

### Statistical Work for the Year

During the year 1913 the New York Milk Committee has corresponded with the health officers of all the cities in the United States

having a population of 25,000 or more, and in states having no cities of 25,000 population to the two cities having the largest population in that state, making in all a total of 247 cities. Correspondence has also been carried on with the health officers of the states and territories. This correspondence has been in the form of requests for information on health matters. Also a blank form was sent out asking, first, for total mortality, and second for deaths of infants under 1 year of age, for deaths by months for the five-year period, from 1906 to 1910, and the ten-year period from 1901 to 1910, and for the years 1911, 1912 and 1913 to date. Regular reports are now being received from 87 of these cities, and are tabulated from month to month.

INFANT MORTALITY STATISTICS OF GREATER NEW YORK AND ITS BOROUGHS COMPARED WITH THOSE OF FORTY-FIVE OTHER CITIES IN THE UNITED STATES

RANK IN POPULATION	CITY	POPULATION 1910	TOTAL MORTALITY 1913	GEN-ERAL MOR-TALITY 1913	DEATHS UNDER ONE YEAR					INFANT MORTALITY RATE					PERCENTAGE OF TOTAL MORTALITY				
					Aver-age 1906-10	1910	1911	1912	1913	Aver-age 1906-10	1910	1911	1912	1913	Aver-age 1906-10	1910	1911	1912	1913
1	New York City, N. Y.	4,766,883	73902	13.76	16609	16215	15017	14289	13779	135.8	125.6	111.6	105.3	101.9	21.9	21.1	19.9	19.5	18.6
2	Bor. of Manhattan, N. Y. C.	2,331,542	36147	14.53	9196	8954	8192	7675	7149	141.2	139.4	123.1	115.9	113.6	23.5	23.2	21.3	21.0	19.7
3	Chicago, Illinois	2,185,283	35291	15.04	6581	6341	6309	6709	6449	123.4	123.4	111.6	106.5	103.6	21.1	20.6	19.3	19.7	18.1
4	Bor. of Brooklyn, N. Y. C.	1,634,351	24500	13.30	5190	5059	4629	4452	4371	140.2	118.4	101.3	97.9	95.3	20.7	19.7	18.9	18.5	17.8
5	Philadelphia, Pennsylvania	1,549,008	25006	15.73	5330	5030	4610	4151	4045	134.4	135.3	113.5	102.4	101.3	19.9	19.3	17.6	17.0	18.1
6	St. Louis, Missouri	687,029	10859	14.40	1738	1707	1579	1474	1494	121.2	121.2	101.6	97.3	95.3	10.7	10.7	14.5	13.8	13.7
7	Cleveland, Ohio	566,265	8872	15.61	1372	1372	1249	1188	1199	132.2	132.0	124.0	117.0	114.7	25.5	25.5	22.2	22.0	22.0
8	Baltimore, Maryland	558,483	8844	14.14	2167	2148	1958	2026	1995	156.8	128.0	117.7	117.7	114.7	21.1	20.0	18.7	19.4	19.4
9	Pittsburgh, Pennsylvania	333,905	9545	17.1	2019	2251	1810	1818	1841	131.1	150.0	122.6	126.7	126.7	23.8	23.5	22.3	20.7	10.3
10	Bor. of Detroit, Michigan	887,171	1781	12.95	1862	1922	1922	1922	1922	100.3	139.2	131.0	131.0	131.0	28.1	26.1	25.6	25.6	25.6
11	Bor. of Bronx, N. Y. C.	430,980	7042	12.06	1028	1051	1093	1122	1154	114.3	96.3	87.6	81.9	78.6	15.9	15.1	15.7	16.1	16.4
12	San Francisco, California	416,712	7043	15.76	1358	1323	1304	1448	1031	140.5	102.0	123.7	124.9	134.4	20.9	23.4	20.7	22.2	23.1
13	Buffalo, New York	373,557	5159	13.43	1271	1308	1208	1285	1371	131.1	139.7	124.4	124.4	124.4	10.3	10.3	10.3	10.5	9.2
14	Waukegan, Wisconsin	323,557	5159	13.43	1271	1308	1208	1285	1371	131.1	139.7	124.4	124.4	124.4	10.3	10.3	10.3	10.5	9.2
15	Newark, New Jersey	323,557	5159	13.43	1271	1308	1208	1285	1371	131.1	139.7	124.4	124.4	124.4	10.3	10.3	10.3	10.5	9.2
16	New Orleans, Louisiana	339,975	7088	18.06	1133	1062	1077	782	941	161.5	162.0	162.0	162.0	162.0	21.3	21.3	19.9	20.3	17.0
17	Washington, District of Columbia	331,069	6006	16.99	1114	1068	1077	782	941	161.5	162.0	162.0	162.0	162.0	21.3	21.3	19.9	20.3	17.0
18	Los Angeles, California	319,198	6104	12.39	467	531	518	595	714	97.8	97.0	108.9	98.0	106.5	23.1	21.9	20.6	19.7	18.7
19	Bor. of Queens, N. Y. C.	284,041	4611	12.81	872	869	825	784	861	141.8	122.0	108.9	98.0	106.5	23.1	21.9	20.6	19.7	18.7
20	Kansas City, Missouri	248,381	4089	14.87	550	554	501	625	657	154.0	154.0	115.1	117.3	130.2	10.4	10.5	13.2	15.3	13.4
21	Louisville, Kentucky	223,928	3809	14.9	543	593	502	506	559	154.0	154.0	115.1	117.3	130.2	10.4	10.5	13.2	15.3	13.4
22	St. Paul, Minnesota	168,744	3529	16.01	552	509	464	439	435	132.0	132.0	110.3	113.3	113.3	20.6	19.9	19.9	19.9	19.9
23	Toledo, Ohio	137,240	2268	15.36	411	447	386	411	451	167.9	160.0	127.0	133.3	145.0	20.8	21.1	19.0	18.9	19.6
24	Syracuse, New York	132,605	2250	15.68	421	409	423	453	384	121.1	141.0	105.2	104.1	120.8	18.4	18.4	18.6	18.7	17.0
25	New Haven, Connecticut	132,605	2250	15.68	421	409	423	453	384	121.1	141.0	105.2	104.1	120.8	18.4	18.4	18.6	18.7	17.0
26	Birmingham, Alabama	127,628	2718	20.58	507	616	539	528	508	183.4	172.0	162.1	173.3	162.1	19.3	21.3	19.8	19.4	18.7
27	Omaha, Nebraska	124,096	1830	13.1	268	293	221	229	174	118.8	125.0	89.3	77.3	66.2	17.3	15.6	12.2	13.4	9.5
28	Dayton, Ohio	116,577	1945	15.19	288	325	266	298	319	159.0	159.0	80.3	65.8	123.0	18.2	18.8	16.4	16.4	16.4
29	Cleveland, Ohio	112,571	1734	15.08	257	329	239	260	448	96.8	138.8	106.8	106.8	106.8	10.6	10.6	10.6	10.6	10.6
30	Nashville, Tennessee	104,402	1140	8.88	207	292	218	147	159	110.6	128.0	95.6	72.1	74.6	18.1	21.2	16.7	14.3	15.3
31	Bridgeport, Connecticut	102,954	1668	14.5	355	357	343	307	400	134.4	123.0	111.0	113.0	110.9	20.9	23.5	23.3	24.2	24.3
32	Albany, New York	100,253	2001	19.91	224	257	237	262	270	183.2	187.7	113.5	131.0	105.6	12.4	13.2	12.4	12.8	13.5
33	Hartford, Connecticut	98,915	1818	18.34	311	286	303	388	332	132.5	113.7	113.5	131.0	105.6	12.4	13.2	12.4	12.8	13.5
34	New Bedford, Massachusetts	96,652	1686	16.95	529	685	603	518	518	160.0	160.0	266.0	266.0	266.0	33.7	34.6	33.7	33.7	30.2
35	San Antonio, Texas	96,614	2322	16.6	408	484	401	491	448	103.1	103.1	54.1	60.7	95.6	22.2	22.5	18.7	20.0	19.2
36	Salt Lake City, Utah	87,777	1236	9.9	210	132	155	183	183	103.1	103.1	54.1	60.7	95.6	22.2	22.5	18.7	20.0	19.2
37	Wilmington, Delaware	87,777	1236	9.9	210	132	155	183	183	103.1	103.1	54.1	60.7	95.6	22.2	22.5	18.7	20.0	19.2
38	Bor. of Richmond, N. Y. C.	85,969	1552	16.19	323	278	276	254	242	162.9	141.6	125.4	112.5	106.1	23.2	23.2	21.3	21.7	21.3
39	Troy, New York	76,813	1369	17.11	249	224	208	208	155	267.3	244.5	113.2	132.9	170.4	15.9	14.0	14.1	13.6	12.7
40	Schenectady, New York	72,826	1053	12.30	260	289	201	221	224	145.4	100.3	113.2	132.9	170.4	15.9	14.0	14.1	13.6	12.7
41	Evansville, Indiana	69,647	1062	12.49	144	172	189	121	224	145.4	100.3	113.2	132.9	170.4	15.9	14.0	14.1	13.6	12.7
42	Akron, Ohio	69,607	1118	12.53	206	197	199	255	285	132.0	96.6	142.0	109.0	117.6	22.6	20.8	20.8	23.1	25.0
43	Erie, Pennsylvania	66,525	1118	12.53	206	197	199	255	285	132.0	96.6	142.0	109.0	117.6	22.6	20.8	20.8	23.1	25.0
44	Pasadena, California	58,178	801	10.87	143	134	111	130	153	132.0	96.6	142.0	109.0	117.6	22.6	20.8	20.8	23.1	25.0
45	Pasadena, California	58,178	801	10.87	143	134	111	130	153	132.0	96.6	142.0	109.0	117.6	22.6	20.8	20.8	23.1	25.0
46	Lincoln, Nebraska	43,973	624	9.2	97	77	137	86	111	132.0	96.6	142.0	109.0	117.6	22.6	20.8	20.8	23.1	25.0

\* Rate based on births as estimated by Health Officer.

Aside from tabulating the monthly and weekly bulletins received from various cities, considerable work has been done during the year on New York City Infant Mortality Statistics. Current figures are circulated from week to week. For the Borough of Manhattan special figures have been compiled from the death certificates as they were sent



into the Department of Health. Records for certificates of infants under one year of age are kept and distributed according to the location in which the death occurred.

After deaths are tabulated according to place of occurrence a pin map of Manhattan shows at a glance where infant deaths are increasing, and where the situation gives cause for alarm the child welfare agencies in that district are immediately notified and given the details of the situation as far as the tabulation shows it, and they are urged to exert every effort to locate and overcome the cause of increased deaths. Complete monthly tabulations are also kept and from them is sent out a brief monthly report and a report for each quarter and half year. A table is herewith presented comparing mortality statistics of New York and Borough with those of forty-five other cities from which returns for 1913 have been received. The cities can be divided into three classes, namely, those giving reasonably complete birth registration, those whose birth registration is sufficiently complete to estimate the number of births occurring in the city, and those giving neither number of births reported nor an estimate. The cities which estimate their births occurring are indicated with a star.

The Department of Health of New York City estimated in 1912 that 5 per cent of the births were not reported. If the 5 per cent of births not reported be added to the total number reported and the infant mortality rate then found for 1913, it would be 96.8 instead of 101.9 as published. To use this rate for New York City would, however, not be fair, as the birth returns of all cities appearing in the table are known to be more or less incomplete. It is of interest to note that the reported births in New York City for 1913 are over five hundred less than in 1912, which would seem to indicate either a decrease in the birth-rate or an increase for 1913, in the number of births not reported.

On account of the unsatisfactory birth returns it is difficult to compare with fairness the Infant Mortality rates of the different cities. However, the rates as presented are valuable indices as to the character of Health Department activities when considered in connection with the increase or decrease in the actual number of infant deaths, the per cent of infant deaths to the total deaths, and with the general death rate.

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**Radium Treatment of Cancer.**—In view of the popular furore which the radium treatment of cancer has excited in this country, it seems advisable to sound a note of warning. According to the best authorities, the radium treatment of cancer is as yet a matter of experiment, and what successful results have been obtained concern chiefly the treatment of external cancers, particularly those of the skin. Even though radium may eventually prove of much greater value than has been the case in the past, it must not be overlooked that the first principle in cancer treatment is still early recognition and early, thorough removal.

Thus far, there is practically no proof that radium has finally cured any one case of advanced and disseminated cancer. There is every reason to believe that the popular interest aroused in the radium treatment of cancer will be utilized by a large number of dishonest and fake, money-getting establishments conducted by individuals with little or no radium, and who have no knowledge of its use. This has been the experience in Europe, where the popular enthusiasm about radium appeared earlier than it did here. The great danger, of course, in all these "cures" is the valuable time which may be wasted, thus frequently dissipating all chances of cure by surgical means.

We have arranged to devote the forthcoming of the Monthly Bulletin to an unbiased account of the progress of cancer research, including an authoritative statement of the place of radium as a therapeutic agent in this disease.—*New York Public Health Bulletin.*

## DEPARTMENT OF THERAPEUTICS

Conducted by J. B. McGEE, M. D.

**Tetany:** In the *Journal of Experimental Medicine* for January, David Marine presents certain observations on tetany in dogs. As to calcium salts, he states that they are palliative and preventative, but in no sense curative. In tiding over otherwise fatal tetanies calcium salts are of the greatest value. This fact is of clinical importance, in operations on goitre, in man. When tetanies develop following operations, calcium salts are of the greatest value in tiding over acute insufficiencies. As regards the administration of calcium the stomach route is preferable to all others, and is equally efficient since the few minutes quicker action when given intravenously, is offset by the greater dangers. Subcutaneous injection is also not to be recommended, on account of the irritant action, discomfort and danger of necrosis. In this summary he states that in the absence of all parathyroid tissue in dogs, calcium salts will not save the animal's life; while in the presence of active parathyroid tissue, calcium salts will save it. Many factors other than the amount of parathyroid tissue removed, influence the onset of tetany, among which are age, pregnancy, lactation, rachitis, the administration of sulphur, and diet. Pregnancy and lactation tetany in dogs resembles in all essentials, parathyroid tetany. His observations are in harmony with those who hold that thyroid and parathyroid are independent structures as regards their anatomy, physiology, and pathology. The removal of the parathyroids immediately lowers sugar tolerance, but rarely to the degree of constant glycosuria. In sharp contrast with thyroid substance in myxedema the feeding of parathyroid substance fresh or dried, by mouth, is of no value in the parathyroid tetanies of dogs. Calcium salts have a striking palliative effect on parathyroid tetany, and preventative action in tiding over otherwise fatal cases, but are in no sense curative. The mode of action is unknown. There is some evidence that calcium salts directly influence the thyroid gland.

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**Pertussis Vaccine:** O. H. Kelsall in the January number of the *Therapeutic Gazette* reports on the use of vaccine in pertussis. It has now been established beyond any reasonable doubt that the bacillus of Bordet and Gengou is the specific cause of pertussis, and it is from this organism that the vaccine is prepared. The vaccine employed by him contains 50,000,000 killed bacteria in lcc. solution, and the safe initial dose is 20,000,000 to 25,000,000 bacilli. He treated thirty patients, by far the greater number being under three years of age. Not obtaining sufficient effect from the dose recommended, he soon began giving 50,000,000 bacilli at a dose. He observed that the younger the child to whom he gave this dose, the more successful and prompt the outcome, so he believes that a larger dose may be given at least to older children. In every case three to six doses were administered at intervals of three to five days. He has found that when a child is already in the stage of incubation the vaccine will not prevent development of the disease, but when the child is not in the stage of incubation, but is about to be exposed several doses of the vaccine will act as a successful prophylactic in the majority of cases. In every instance, amelioration of the symptoms was secured, the paroxysms were milder and less frequent, the disease in the majority of cases was shortened to about four weeks, and in the later days of the attack the paroxysms were so slight and infrequent, that comfort was greatly increased. Another effect noted was the absence of complications. In only one case did broncho-pneumonia develop and this was the only fatality in the series and in an unfavorable case. He concludes the Pertussis vaccine constitutes the most potent and successful remedy, at our command for the treatment of this disease, and possibly also for its prevention. It renders the paroxysms milder and less frequent. It shortens the disease, and is a great aid in preventing compli-



cations. The dose should be larger than hitherto recommended, at least in children of five years and older.

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**Goiter:** In the *Monthly Cyclopedia* for January, Charles E. deM. Sajone treats of the antitoxic functions of the thyroid in the pathogenesis and treatment of goiter, although what has been termed "detoxicatory" functions have been ascribed to the thyroid gland, the relationship that this function might have with the pathogenesis of goiter has escaped attention. Authors are in accord as to the fact that the disease is due to some form of intoxication, whether the still obscure agent be calcium, some other water borne inorganic poison, a bacterial toxin, et cetera. We have reasonable grounds for the belief that this poison excites in the body a defensive reaction. We must add then to our present conception of the pathogenesis of goiter, the postulate, that the causative agent in a given case acts by awakening in the thyroid gland and its accessory parathyroid glandules, a reaction having for its purpose the destruction of the pathogenic agent, so he believes in view of the fact that infectious toxic wastes et cetera cause enlargement of the thyroid, that a defensive reaction of that organ accounts for the development of goiter. The recognition of this fact enables us to get better results in the treatment of goiter by emphasizing the importance of endogenous intoxication in the causation of the disease. Concomitant goiter and chlorosis are occasionally seen in young girls; the treatment of the coprostasis so common in them will sometimes alone cause the swollen thyroid to recede. Poor or carious teeth, possible hindering mastication, suppurative foci, briefly any condition that is capable of producing systemic poisoning, including toxins and endotoxins, must be illuminated. In short, the successful treatment of goiter is not a mere question of thyroid and iodine. Intestinal antiseptics, the salicylates, creosote carbonate, menthol, et cetera, are also helpful, when intestinal functions have been regulated. This accounts for the success obtained by McCarrison with thymol, his belief being that a special micro-organism was the pathogenic factor in his patients. The recognition of cases which are amenable to medical treatment is not difficult. Such treatment will prove effective as a rule, when the gland is diffuse and elastic, i. e., of the parenchymatous type, particularly in adolescents and young adults. In the nodular, cystic, colloid, fibrous and the intrathoracic forms, iodine is seldom of value and sometimes dangerous. He has seen a single drop of tincture of iodine cause marked toxic phenomena in nodular goiter. Yet the fact that the line of demarcation between medical and surgical cases is not always clearly defined warrants a test of the medical treatment while closely watching the patient, a step which sometimes yields unexpected favorable results. Goiter should be looked upon as a danger signal, and no water known to be capable of producing goiter should be used by a community. Even the resource of boiling fails here, since it minimizes but does not destroy the pathogenic agent. Medical school inspectors should look on incipient goiter as evidence that the child bearing it is being exposed to physical and mental decay through chronic poisoning, and try to prevent it by calling attention to the need of immediate treatment on modern lines.

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**Luminal:** *Merk's Archives* for January comments on the new hypnotic, luminal, and the treatment of its by-effects. Reports of its by-effects point to caution, and small doses in the use of this new and powerful hypnotic. Earlier reports were to the effect that in doses of 0.2 to 0.4 gm. (3 to 6 grains) luminal produced a deep sleep in most patients without after effects. In the Moabite Hospital luminal and luminal sodium were given to 150 patients with generally excellent results. The chief usefulness of luminal will doubtless be found in cases of mental excitement in epilepsy, and in cases of insomnia, in which milder hypnotics, such as veronal and bromural are not effective. Toxic symp-

toms have occasionally followed its use, a number of such cases have been reported, and it seems to Doctor Barnes, who has made a clinical study of the comparative merits of veronal and luminal, that a consideration of all the facts leads to the conclusion that luminal has some toxicity, varying with the nature of the case, being slight, sometimes possibly almost negligible in the sthenic, and being considerable in the asthenic. As luminal differs from veronal in chemical constitution only, in the presence of the phenyl radicle in place of one ethyl radicle, he infers that the characteristic effects produced by luminal are due to the phenyl radicle. He, however, declares that luminal is the most certain and effective hypnotic existing today. He states that it should never be used in asthenic cases, but that it might properly be used in sthenic cases occasionally, when there is a positive demand for a strong hypnotic, especially when there is need for hypodermic administration; that veronal in any case in which it is sufficient is preferable to luminal; when veronal is not sufficient, the best results may sometimes be obtained by reinforcing it with a minimum dose of luminal instead of luminal alone; and when luminal is used, it should be in the smallest efficient dose. For its toxic effects treatment is the same as for those of veronal. Elimination, and in severe cases practically the same as for uremia.

**Saline Solution:** A. C. Geyser, in the January number of *American Medicine*, writes concerning the use and abuse of normal salt solution. As to its dangers, he asserts that it would be strange if a remedy as potent and yet as simple as the normal salt solution should escape indiscriminate and thoughtless use by the inexperienced. Again and again attention must be called to the fact that we are dealing entirely with physiological processes, that the elimination of water by the kidneys is so frequently looked upon as practically without limitation, together with the fact that sodium chlorid is found so generally in the fluids of our body and is used *ad libitum* with our daily meals, no doubt account for a great deal of its indiscriminate use. Then again the error is often made of prescribing the use of this agent, without a knowledge of the blood-pressure, the cardiac condition, the ability of the vessels to handle so sudden an increase in the circulating medium or finally the condition of the glomeruli, on which depends so much of the capacity of the kidney to excrete the increased amount of chlorid thus suddenly forced upon it. Therefore, when use is made of normal salt solution in the presence of some grave and serious condition, and as a result of which the patient expires, the blame is seldom or never laid to the door of the therapeutic procedure, but rather to the grave and serious pathological changes which previously existed. The abuse of the normal salt solution is well set forth in a collection of cases by Evans. A case was recently reported by Brooks where one and one-half litres of salt solution in three doses were introduced per rectum, apparently without any particular indication for its use. A short and simple appendectomy had been performed, patient had practically lost no blood, the pulse was perfect. The giving of the saline solution was left to the nurse, who either through ignorance or gross carelessness made use of a stock solution of nearly saturated sodium chlorid. This patient received almost nine ounces of pure salt with rapidly fatal results from acute sodium chlorid poisoning. Such cases are probably rare, but it is well to bear this one in mind when hurriedly and extemporaneously preparing the solution. When a teaspoonful of salt is used to the pint of water, we do not, of course, see such acute poisoning, but we must bear in mind the hemolytic effects of solutions that are hypotonic. It is the understanding of such effects that swell our statistics of fatalities from shock, hemorrhage and other surgical complications. In surgical shock after even a prolonged operation without hemorrhage, we may have a low blood pressure, but this low blood pressure is certainly not an indication for a normal salt solution. How is the addition of a salt solution to a system that is incapable of handling the fluids already present in the vessels at that time going to benefit it?



On the contrary, while its addition cannot here benefit, it is capable of doing great harm. Where the eliminating function is at all impaired, so that the excess sodium chlorid is not promptly eliminated, osmotic disturbances are sure to follow with resulting harm to the tissues.

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**Diphtheritic Paralysis:** The *Medical Record* for January 10th considers editorially recent investigations on diphtheritic paralysis. The nature of diphtheritic paralysis, its relation to toxins of the diphtheria bacillus, and the efficiency of the serum treatment in preventing, or in relieving this condition, are subjects about which there has been considerable difference of opinion. The idea has prevailed that antitoxic treatment has not tended to diminish the incidence of paralysis. The introduction of the more modern methods of treatment, particularly the use of single large doses of antitoxin, and the employment of the intravenous method of administration, and the recent announcement by von Behring that certain mixtures of diphtheria toxin and antitoxin are more potent in the treatment of diphtheria than antitoxin alone, place the subject of diphtheritic paralysis in a new light, and suggests many new points of interest regarding the causation and prevention of this condition. Professor Paul Romer and Doctor Viereck have investigated this question and find that antitoxin in no way favors the onset of paralysis. Animal experiments show that, when timely used, even small doses of antitoxin serve to prevent the onset of paralysis; the administration of antitoxin within twenty-four hours after the injection of diphtheria toxin either prevents entirely or greatly mitigates the paralysis. They were not able, however, to demonstrate any curative influence of the antitoxic serum upon any paralysis that has resulted. Practical conclusions derived from the experiments are that the early administration of antitoxin is necessary that the most effective route is the intravenous one, and that sufficient antitoxin, though not necessarily a massive dose, should be given, in order that the possibility of ensuing paralysis should be minimized. The treatment most effective in combating the acute diphtheritic infection is therefore the one that is most potent in preventing the secondary paralysis.

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**Chronic Nephritis:** Rollin Hills, in the *New York Medical Journal* for January 31st, summarizes the modern treatment of chronic nephritis. Although the pathologists describe an almost countless number of varieties of chronically diseased kidneys, the simplest and most practicable classification for the therapist is a division into the chronic parenchymatous and chronic interstitial types. We must remember that the process is never entirely limited to the parenchymatous or entirely to the interstitial tissue; there is always a combination of the two processes. But a predominance of one or the other factor in the process gives rise to certain difference in symptoms and physical signs and calls for certain differences in treatment. The first indication in chronic nephritis of either variety is relative rest for the patient and the diseased kidneys. This means that over-exertion (mental or physical) and violent exercise must be prohibited. Unless the edema is pronounced or the heart very weak, these patients usually do better if allowed to take moderate outdoor exercise. Exposure to cold and damp is to be avoided and woolen clothes of suitable thickness should be worn next the skin all the year round. As to diet, few now advocate an exclusive milk diet, but it should be one of the main articles, and if possible one quart should be taken daily. As to meat, the tendency at present is to allow a small amount of meat once a day, making no distinction between dark and light meat. By allowing a small amount of meat once a day, an occasional egg, and a quart of milk, the proteid equilibrium is maintained. The patient should partake sparingly of soups rich in meat extractives, but fish is almost universally allowed. In chronic parenchymatous nephritis, water should not be taken to excess, particularly when edema is present. It must be remembered

that the diseased kidney has often lost its power of excreting large amounts of water, so that when the urine is scanty and edema is stationary or increasing, increased intake of water is followed by an increase in the edema instead of polyuria. In general, the patient's thirst is a good guide; one and one-half to two quarts is a fair daily allowance when no edema is present. In chronic interstitial nephritis the question of the amount of fluid to be allowed has caused discussion in this form as in the other. It seems certain that large amounts of fluid (several quarts daily) throw extra and excessive work on the kidneys. The German plan is to have the patients take one day a week a large amount of water (two to four quarts) to flush out the system, and only a reasonable amount, guided by the thirst, on other days. Von Noorden and others advise limiting the amount of water, holding that large amounts increase blood pressure. As to heart and blood vessels, it is now recognized that hypertrophy and hypertonia are compensatory to a certain extent. Extreme hypertrophy and high tension cause headache and dizziness and lead to cerebral hemorrhage or cardiac dilatation. The first step in lowering blood pressure should be to cut down the bulk of food, both solid and liquid. The treatment of special symptoms is in accordance with well-known principles.

**Calendula:** William M. Gregory in the February number of the *Medical Council* reports on calendula as an efficient dressing for burns. He states that a reliable non-toxic dressing for burns is needed; those extensively used are by no means free from danger, when applied over a large area. Phenol, picric acid, iodoform and lead carbonate are, if freely used, liable to induce dangerous results. An instance of which he had knowledge was the case of a two-year-old child with a burned arm, in which a liberal dressing of lead carbonate resulted in lead poisoning with convulsions. In young patients with extensive areas, which have been burned, absorption of toxic chemical dressings is an ever present danger. Calendula has in his hands proved wonderfully effective in burns. As a dressing it relieves pain, promotes rapid healing, and is an antiseptic which prevents pus formation, thus inducing aseptic healing. The proper preparation to use is the non-alcoholic extract or fluid extract of calendula officinalis or marigold. There is a tincture prepared for internal use, but for all antiseptic and surgical purposes, this concentrated preparation is the necessary one. The succus calendula is not effective, but this thick, non-alcoholic extract when properly made is of great value; it is non-proprietary and is made for the regular trade channels for drugs and procurable by them. Dressed with carron oil, burns are often covered with pus in a day or two, but with calendula they remain absolutely aseptic and clean, healing rapidly. The same holds good with wounds which are bruised or lacerated, as he has frequently verified. It is superior to ichthyol, especially in the relief of pain. He adds two ounces of calendula as described above to fourteen ounces of saturated boric acid solution, and applies on gauze or absorbent cotton. Many preparations of calendula are little more than colored water, and much of the crude drug is worthless practically. A good non-alcoholic extract is so concentrated as to be almost a syrup.

**Smallpox and Vaccination.**—With the intimate relations which New York City has to the rest of the State, it cannot be but disquieting to learn that so far this winter more than 250 cases of smallpox have occurred in the City of Niagara Falls. The spread of this disease in that city is due entirely to the continued neglect of vaccination following a persistent campaign of misrepresentation by the antivaccinationists. The result is always the same; an unvaccinated community is sooner or later ravaged by smallpox, and thus made to pay the price of its folly.

In this connection we call attention to the fact that according to a recent decision of the Appellate Division of the Supreme Court of this City, the Court ruled that parents must have their children vaccinated before they attend school. If they refuse, they may be fined \$5 for the first offense, or \$50 or fifty days in jail for the second offense. Enforcement of this law rests with the educational authorities.



## NEW AND NONOFFICIAL REMEDIES

Since January 1st the following articles have been accepted for inclusion with "New and Nonofficial Remedies:"

Hynson, Westcott & Co.:

Phenolsulphonephthalein, H. W. & Co.

Phenolsulphonephthalein Ampoules, H. W. & Co.

H. K. Mulford Co.:

Anti-Anthrax Serum, Mulford.

Antistreptococcus Serum Scarlatina, Mulford.

Disinfectant Krelon, Mulford.

Salicylos.

Staphylo-Serobacterin.

Strepto-Serobacterin.

Typho-Serobacterin.

Scarlatina Strepto-Serobacterin, Mulford, has not yet been submitted to the Council.

Since publication of "New and Nonofficial Remedies," 1913, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

**Radium and Radium Salts.**—Radium is used in medicine in the form of its chloride, bromide, sulphate and carbonate. The therapeutic value of radium salts depends on the emanations which are given off from the radium. Radium emanation consists of alpha-rays, beta-rays and gamma-rays, the latter being similar to x-rays and therapeutically the most useful. The quantity and concentration of radium emanations are expressed in terms of "curie" and Mache units. A "curie" is the amount of emanation in equilibrium with 1 gm. of radium and a microcurie is one-millionth of a "curie." A microcurie is equivalent to about 2,500 Mache units. It has been claimed that radium emanation is of value in all forms of non-suppurative, acute, subacute and chronic arthritis, in chronic muscle and joint rheumatism, in arthritis deformans, acute and chronic gout, neuralgia, sciatica, lumbago and in tabes dorsalis for the relief of lancing pains. Its chief value is in the relief of pain. Surgically marked results are obtained in the removal of epitheliomata, birthmarks and scars. Radium may be administered in baths, by subcutaneous injection in the neighborhood of an involved joint (0.25 to 0.5 microcurie in 1 or 2 cc. distilled water), by local application as compresses (5-10 microcuries), by mouth as a drink cure (in increasing doses of from 1-10 to 10 microcuries three or more times a day), by inhalation, the patient for two hours daily remaining in the emanatorium, which contains 0.0025 to 0.25 (average 0.1) microcurie per liter of air.

**Radium Chloride.**—Radium chloride is supplied in the form of a mixture of radium chloride and barium chloride, and is sold on the basis of its radium content. Radium Chloride—Standard Chemical Co., Radium Chemical Co., Pittsburg, Pa.

**Radium Sulphate.**—Radium sulphate is supplied in the form of a mixture of radium sulphate and barium sulphate and is sold on the basis of its radium content. Radium Sulphate—Standard Chemical Co., Radium Chemical Co., Pittsburg, Pa. (Jour. A. M. A., Jan. 3, 1914, p. 41.)

**Sodium Acid Phosphate.**—Sodium acid phosphate (Sodii Phosphas Acidi),  $\text{NaH}_2\text{PO}_4 \cdot \text{H}_2\text{O}$ , is the monosodium dihydrogen salt of orthophosphoric acid, containing not less than 82 per cent of anhydrous sodium acid phosphate. Sodium acid phosphate is administered to render the urine acid or to increase its acidity. It is used for this purpose to assist the action of hexamethylenamin which is effective only in acid urine. It should be given so that it has left the stomach before the hexamethylenamin is given. Non-proprietary preparations: Sodium Acid Phosphate, M. C. W., The Mallinckrodt Chemical Works, St. Louis, Mo.; Sodium

Phosphate, Monobasic, P. W. R., The Powers-Weightman-Rosengarten Co., Philadelphia, Pa. (Jour. A. M. A., Jan. 10, 1914, p. 127.)

Slee's Refined and Concentrated Tetanus Antitoxin (Globulin Solution).—For description of Tetanus Antitoxin see N. N. R., 1913, p. 218. Abbott Alkaloidal Co., Chicago.

Slee's Normal Horse Serum.—For description of Normal Horse Serum see N. N. R., 1913, p. 236. Abbott Alkaloidal Co., Chicago (Jour. A. M. A., Jan. 10, 1914, p. 128).

Ampoules Emetine Hydrochloride, P. D. & Co.—Each ampoule contains emetine hydrochloride 2.02 gm. Parke, Davis & Co., Detroit, Mich. (Jour. A. M. A., Jan. 10, 1914, p. 128).

Phenolsulphonephthalein.—A product differing chemically from phenolphthalein in that a carbonyl group of the latter has been replaced by a sulphone group. Phenolsulphonephthalein is used to determine the functional activity of the kidneys. It is injected intramuscularly or intravenously and its rate of excretion determined colorimetrically. Phenolsulphonephthalein is a red powder which yields a deep red solution with water or alcohol containing an alkali.

Phenolsulphonephthalein, H. W. & Co.—Made by a special process and said to be exceptionally pure. Hynson, Westcott & Co., Baltimore, Md.

Phenolsulphonephthalein Ampoules.—Each contains a solution of 0.006 gm. phenolsulphonephthalein, in the form of the monosodium salt. Hynson, Westcott & Co., Baltimore, Md.

Sterile Ampoules of Mercury Salicylate.—Each contains 0.06 gm. of mercury salicylate N. N. R., suspended in a vegetable fat. Hynson, Westcott & Co., Baltimore, Md.

Salvarsan-Ehrlich, Suspension in Ampoules.—Each contains 0.1 gm. of salvarsan, suspended in a vegetable fat. Hynson, Westcott & Co., Baltimore, Md.

Neosalvarsan-Ehrlich, Suspension in Ampoules.—Each contains 0.15 gm. neosalvarsan suspended in a vegetable fat. Hynson, Westcott & Co., Baltimore, Md. (Jour. A. M. A., Jan. 24, 1914, p. 297 and 298.)

Elarson.—Elarson is the strontium salt of chlorarsenobenhenolic acid, containing about 13 per cent of arsenic and about 6 per cent of chlorin. It has the action of arsenic, but the arsenic being in liquid-like combination is said to be better utilized and to exert its therapeutic effects in smaller doses than other organic arsenical preparations. Also, it is said to produce relatively little gastric irritation. It is sold only in the form of Elarson tablets. The Bayer Co., New York. (Jour. A. M. A., Jan. 31, 1914, p. 379.)

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**Orthopedic Surgery.**—A review of the progress of orthopedic surgery during the past decade or so given by J. L. Griffith, Kansas City, Mo. (*Journal A. M. A.*, March 7). He first speaks of the advances made in the treatment of tuberculosis, especially mentioning the use of immunized milk advised by Rosenberg. Should its value be demonstrated, it will be, he says, the greatest boon given the medical profession for fifty years. The prevalent opinion as to the nature and cause of arthritis, especially tonsillar infection and the advances that have been made in treating the results of poliomyelitis and methods that are still in the experimental stage, like nerve transplantation, anastomosis, etc., are also mentioned. Lorenz and Hibbs' work in regard to congenital hip dislocation and that of Hibbs and Albee in vertebral surgery, the various methods for the relief of scoliosis and the aid that the orthopedist can give in the treatment of enteroptoses, as shown by Goldthwait, are also mentioned. The article will serve for convenient reference in regard to these various methods.



## The Academy of Medicine of Cleveland

### ACADEMY MEETING

The one hundred and seventh regular meeting of the Academy was held at 8:00 P. M., Friday, February 20, 1914, at the Cleveland Medical Library. J. J. Thomas, the president, was in the chair.

The program follows:

**Some Factors in the Diagnosis and Treatment of Syphilitic Aortitis, by Warfield T. Longcope, M. D., New York City.**

From the many important discoveries within the past 12 years that have laid bare the etiology, natural history and the rational treatment of syphilis, there have developed numerous studies that throw a sidelight upon the problems concerned with the survival of the parasite in the host and the development of the tertiary stage. One of these has to do with the invasion of the wall of the aorta by the spirochaeta pallida, its survival in this situation and its ability to produce changes in the coats of this great vessel. For some reason as yet unsatisfactorily explained, the locations that seem to be most frequently selected by the spirochaetes for their safe protection and survival are the central nervous system and the aorta.

Syphilitic aortitis is a common manifestation of tertiary syphilis, in this approaching in frequency tabes and paresis. It is, moreover, in many instances associated with syphilis of the central nervous system. The diagnosis in the first place is made after the development of the complicating conditions, aortic insufficiency, aneurysm or angina pectoris, and when such symptoms as pain, paroxysmal dyspnoea and the evidences of slight heart failure have appeared. Without these signs dilatation of the aortic arch is the most reliable evidence, though cases of non-syphilitic dilatation may occur presenting exactly the same clinical picture as syphilitic aortitis. A positive Wassermann is therefore essential for an accurate diagnosis.

The results of treatment with salvarsan and mercury have rarely given more than a temporary relief. The reason for this seems to depend at least in part upon a number of factors. Owing to the danger of the Herxheimer reactions only small doses of salvarsan can be administered safely intravenously, though mercury seems to be without harm. Prolonged treatment is therefore demanded. In the second place, once symptoms have appeared, the life of the individual is very short, from 65 per cent to 70 per cent of the cases living only one or two years. To overcome this factor it is necessary to make a diagnosis early and institute treatment before irreparable damage has been done. And finally, the eradication of the disease, on account of the situation of the spirochaetes peculiarly protected from the blood stream, is especially difficult. In an attempt to break down this barrier potassium iodide may be of assistance, and must be combined with prolonged and persistent specific therapy.

The speaker showed a number of lantern slides of radiographs which helped greatly in the forceful presentation of his subject.

(Doctor Longcope's paper appears in full in another part of this number of the Journal.)

C. F. Hoover, in opening the discussion, said that in regard to the significance of the accentuated second aortic, and the tympanitic aortic sounds in the diagnosis of early syphilitic involvement of the aorta there were certain points to be considered. The accentuation of the second aortic is due not to a high blood pressure but to the nearness of the dilated aorta to the chest wall. This may be heard when there is no tympanitic note. The latter is heard only when the aortic ring is involved, when it is a sign of sclerosis at that point. A high blood pressure will not give an accentuation of the second aortic for the reason that the impact must be measured by pressure multiplied by the distance through

which the impact is moved. In the case of an elastic aorta the impact is lessened by reason of the fact that the blood current is not brought to a sudden stop; in the inelastic aorta, however, the blood mass is moved through only a short distance and there is a sudden arrest and increased tension on the valves.

He said that he could recite a better list of recoveries than did the speaker. One woman in whom examination and the X-Ray had revealed a dilated aorta, had sixteen years ago received anti-syphilitic treatment with marked improvement. She was seen eight years later and at this time there was no evidence of aortic enlargement.

Richard Dexter said that he agreed with Doctor Longcope's statement that it was next to impossible to get a negative Wassermann in these cases even after all signs and symptoms had disappeared. He added that in his cases return of his patients to efficiency had been rapid. One patient who had a year ago had a diagnosis of aneurysm made, and who has since been on anti-syphilitic treatment, has for the past eight months been at work and has suffered no distress or discomfort.

J. C. Steuer asked whether or not Doctor Longcope had found any specific kidney involvement associated with his cases of aortitis.

W. T. Longcope said in closing that he was glad that Doctor Hoover had called attention to the fact that tympanitic aortic sound was not associated with changes in the blood pressure. He said that perhaps he had been too conservative in his statements regarding their success with the treatment of syphilitic aortitis. At the onset of their treatment they had been enthusiastic and had expected much that has not in the light of later observation been justified. They now realize that their treatment has not been good enough. Some of their patients have been under observation for the past three years and show complete absence of symptoms, but others have recurring attacks of angina. He felt that if treatment were persisted in over a long period of time, and if a method were devised to cure the disease and not relieve the symptoms, much more would be accomplished.

In reply to Doctor Steuer, he said that none of their cases that had come to autopsy showed any specific affection of the kidney. It is a common thing, however, for the kidney to show a functional derangement in the course of the disease. The kidney condition as a rule improves with the improvement of the heart and circulation under treatment. He thought that the disturbed kidney function was associated purely with the circulatory disturbance within the kidney.

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## THE OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The sixty-ninth regular meeting of the Section was held in the Medical Library on January 30th at 8 P. M.

W. C. Tuckerman presented a man with an indurated encrusted growth at the margin of the lower lid of the right eye. There was no glandular enlargement.

He asked opinions as to its malignancy and suggestions for treatment.

S. S. Quittner saw the case about four months ago. It then looked like a Chalazion which had broken open and whose edges had failed to unite. It was curretted and apparently improved and at present it is smaller than when first seen.

J. E. Cogan suggested an intermarginal excision. He thought that X-Ray treatment might be tried.

W. J. Abbott suggested excision and pathological examination to be followed by a radical operation of the lid in case malignancy was demonstrated.

J. C. Tuckerman regards excision for diagnostic purposes dangerous,



as the procedure increases the malignancy. In carcinoma of the breast immediate radical operation gives 75 per cent recovery, while removal of the breast following incision of a nodule for examination gives only 10 per cent recovery. In case of excision for diagnostic purposes, radical operation must follow at once.

J. M. Ingersoll suggested either expectant treatment or radical operation.

The program of the evening was as follows:

**1. Report and Presentation of a Case of Brain Abscess, by J. M. Ingersoll.**

Patient, a boy of 13, seen this November. Had chronic suppurative otitis media for three years. When seen, had low temperature, slow pulse, dizziness, great irritability. These symptoms (though there was no nystagmus) pointed to brain involvement.

Radiograms showed large choleostoma but no abscess. Radical mastoid operation was performed, choleostoma removed and sinus exposed.

Four days later ptosis of the left lid and paralysis of the left external rectus.

Great irritability continued. Fundus examination by W. E. Bruner showed beginning optic neuritis of the left eye. Right eye normal.

One week later second operation. Dura was exposed but showed no bulging at any point. Incision made in dura inward above the region of the attic. A large amount of pus was evacuated followed by a hernia of the brain substance. Cavity estimated by very gentle blunt probing to be about 5 cm. deep. Operation followed by immediate improvement and uneventful recovery. Eye grounds now normal. No ptosis, but still paralysis of external rectus of the left eye.

J. E. Cogan noted the frequency of paralysis of the external rectus in cases of brain abscess.

W. H. Tuckerman inquired how long the packing was kept up. Recalled a similar case operated with improvement followed later by death. Autopsy revealed multiple abscesses. Has never before seen a case with recovery.

J. M. Ingersoll replied that packing had been done about a month. Warned against exploring abscess cavity with finger. Packing should be done gently, just enough to secure drainage. After operation abscess cavity was filled with iodoform gauze and a radiogram taken. By comparing this with picture before operation, it was possible to outline abscess in original picture. Showing that it had not been properly interpreted.

J. C. Tuckerman asked whether there was a capsule to the abscess. Ingersoll did not know, but thought it possible, as the cavity did not collapse after the evacuation. Tuckerman spoke of hour-glass abscess only one part being evacuated, the case finally ending fatally.

Ingersoll said that in case of multiple abscesses the only hope lay in radiograms, especially stereoscopic, if we learn to fully interpret them. Has tried to locate the semicircular canals on radiograms without success. Then took a skull, inserted wires into the canals and had radiograms made. With the help of these was able to identify some of the canals in the original radiograms. Also suggested stereoscopic radiograms in cases of mastoiditis.

**2. Treatment of Abscess of the Septum, by W. J. Abbott.**

The conditions which facilitate the healing of an abscess in any part of the body are proper drainage and an increased blood supply. After an incision is made and the pus evacuated the elasticity of the muscles and surrounding structures produce enough pressure to keep up the drainage while the increased blood supply caused by the inflammation is a distinct help to the healing.

In case of an abscess of the nasal septum the conditions are altered. The pus collects between the perichondrium and the cartilage often on

both sides of the septum. The cartilage thus deprived of its blood supply and bathed in an infected fluid rapidly degenerates, causing a marked deformity. If a simple incision is made there is nothing to hold the mucous membrane against the cartilage unless the nose is packed. Packing is undesirable under the circumstances.

The method employed in the cases reported was as follows: The pus is evacuated by a large sized hypodermic needle through which one cavity is washed out with sterile saline followed by a weak antiseptic solution. There is no incision. No drainage. After the removal of the infected material, the increased blood supply of the mucous membrane takes care of the rest of the infection and supplies nourishment to the cartilage. Advantages of the method are the ease of operation and freedom of pain if local anaesthetic is used. The results are highly satisfactory. Usually only one operation is needed. If there is any pus the following day, it may be repeated in the same manner.

Nine cases thus treated ranged in ages from 9 to 32. All cases traumatic. All seen at least three times. All were aspirated on the second day, but only in one case was there any pus. This case was not seen till a week after injury had abscess on both sides. On one side there was a small rupture, and this healed promptly after one aspiration. Other side required daily treatment for a week.

J. E. Cogan had a case seen first in a late stage; was treated four weeks followed by flattening of the nose and great deformity.

W. H. Tuckerman had good results with simple incision.

L. K. Baker asked about nature of the trauma.

Abbott said three cases occurred during boxing, one in football game, one in a gymnasium and the others under similar circumstances. All were apparently infected hematmata, as they often showed streaks of blood in the pus.

J. M. Ingersoll did not regard the method as a good surgical procedure, and thought the number of cases insufficient to prove its value.

Dr. Abbott's paper appears in full in this issue of the Journal.

### **3. Cause of Apparent Exophoria in Tests at Reading Distance, by J. S. Cogan.**

As the tests are usually made the accommodation is relaxed and the visual axes are parallel. The test objects are placed at about 33 cm. and hence the line of vision of one eye is outward from the object. If the eyes accommodate for the distance proper convergence takes place and the exophoria at once disappears.

Cogan demonstrated this by various tests.

R. B. Metz noted the lack of value of muscle tests at reading distance and pointed out that the amount of apparent exophoria is in inverse ratio to the testing distance, the matter being a question of simple mathematics.

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## **CLINICAL AND PATHOLOGICAL SECTION**

The ninety-ninth regular meeting of this Section was held on February 6th, 1914, at 8:15, at the Cleveland Medical Library. A. W. Lueke, the Chairman, presiding.

### **Presentation of Cases.**

Walter G. Stern presented a case of relapsed club feet that he had cured. The patient, a boy of five years, was exhibited before the society. He showed no deformity whatever. His treatment had consisted in overcorrecting the deformity by means of an ostioplasty operation, and putting the foot in a plaster cast for three months. He spoke of the fact that the German literature had recently been full of articles dealing with this condition, many and opposing opinions are held regarding treatment; some think that treatment should be that of overcorrection, but these



differ as to how early in life this may be done; the general surgeon believing in resection of the tarsus late in childhood.

He also presented a leg brace made of a new German metal—duraluminum, a compound of steel and aluminum. This has the advantage of being about thirty times stronger than aluminum and in addition it has the advantage of weighing only a few ounces. The brace exhibited was made by the Gilferd Company of this city.

F. E. Bunts said in discussion that he had never had good results in treating this condition in young children, but that he had been successful in treating those past seven years of age by crushing the foot into position and then holding it in a plaster cast for a long period of time.

R. K. Updegraff presented a specimen that was passed from the uterus. It consisted of a mass of tissue roughly circular in outline, about three inches in diameter and a half-inch in thickness. The woman is the mother of two normal children. A little more than a year ago she had an attack of erythema nodosum; a short time after she had an attack of vomiting, with no rise in temperature or abdominal symptoms, and a diagnosis of pregnancy was made. During the month of July she had sought advice because her case had not progressed. Examination at this time showed that the uterus was only slightly larger than normal. Two weeks ago while coming down stairs she passed the specimen exhibited without pain or hemorrhage.

F. E. Bunts presented a large twisted pedicled ovarian cyst removed from a woman of 34. She was the mother of three children. For the past fifteen years she had had pain on the left side following her menstrual periods, and lasting for three or four days. Upon examination five weeks ago a mass about the size of an egg was palpated in the left abdomen and a diagnosis of ovarian cyst was made; operation was refused at this time. The mass rapidly increased in size and upon operation yesterday a large twisted pedicled cyst was removed, measuring about four by six inches. This was adherent to the amentum and to the anterior abdominal wall.

The diagnosis of this condition is interesting. These patients frequently have sudden sharp abdominal pain producing conditions of shock, often in the right abdomen, and resembling a ruptured ectopic pregnancy or a ruptured appendix. When these symptoms are present one should think of the possibility of a twisted pedicled cyst.

The frequency of occurrence of these cysts, among his own cases, is 1 in 10; other surgeons give their occurrence as 1 in 7, and 1 in 5. The gynecologist probably would give a higher average.

A. W. Lueke presented two radiographs of two fractures of the humerus. In both cases there had been delayed union and the fracture in the one case had been plated, whereas in the other a bone graft had been done. He said that he presented these plated because they bore out the statement of Murphy that bone grafting in these cases is a better procedure than the plating operation. He called attention to the fact that there was much better callus formation in the case where the bone graft had been made.

F. E. Bunts said in discussion that he did not believe that the wiring, or plating, or the bone grafting operations were satisfactory. A bone graft set into the medulla of the bone sometimes gives good results, but it is by no means certain. He had recently seen a case where all three had been tried. As a last resort the patient went to Chicago six months ago and had a bone graft done. Bone grafts were secured from the tibia, and were set into the medulla of both the radius and ulna. An X-Ray taken a few days ago shows no evidence of union. Disturbed nutrition, and the trauma doubtless contribute to the delayed union of fractures. The good effects following the operation may in large part be due to the stimulating effects of the operation.

J. E. Tuckerman asked if there had been any medical treatment used

in this case; to which Doctor Bunts answered that in so far as he knew none had been used. He added that he had done a resection of the hip joint on account of tuberculosis, for this same party nearly twenty years ago.

Walter G. Stern, in discussion, told of a case in which a bone graft of the radius had been done a year ago. The space between the fractured ends was so great that he had great doubts that any union would be effected. The bone graft was inserted into the medulla of the radius, and in order to make sure that the parts would be held in apposition, a Lane plate was also put on. The bone graft was held in place by means of four wire brads. The plate was a failure, loosened, and had to be removed. The bone graft united and the case was cured. It was his opinion that the plate interfered with the formation of callus and the calcification of the same.

A. W. Lueke said in answer to Doctor Bunts that he thought that much depended upon the individual case, the nutrition of the patient, and the amount of damage done the tissues at time of injury. He thought that the plates exhibited served to emphasize Murphy's statements. It is said that Lane's plates hold the fracture too tightly, and thereby interfere with the throwing out of callus.

The following program of papers was presented:

**1. Nasal Deformities, with Lantern Slide Demonstrations of Twenty Cases, by Myron Metzenbaum, M. D.**

The first class of these deformities occur in the young and are either congenital, or are the result of traumatism in early life. This condition produces a maldevelopment of the various bones comprising the face, and a malformation of the lower and especially of the upper jaw. The latter is foreshortened, narrowed, and arched. These changed relations because of the depressed nasal bones do not allow the septum sufficient space for its development and therefore the triangular cartilage will bulge into one or both nostrils; moreover at the line of union of the triangular cartilage with the perpendicular plates of the ethmoid and the vomer a bulging occurs which results in the formation of a spur and a twisting of the nose at the nasal-cartilagenous juncture resulting in a nasal deformity. Most of these cases have large adenoid masses; these should first be removed, which removal relieves the impediment of the circulation and re-establishes ventilation to the nasal accessory sinuses and seems to stimulate the development of this region.

The removal of the tonsils not only removes two septic bodies, but at the same time allows a freer movement of the tongue, so that it can lay within the cavity of the upper and lower jaws and thus aid in their development. The orthodontist can now straighten the teeth, lengthen the jaws, widen the arch, and separate the suture of the hard palate; all of these are factors in preventing the bowing of, and in aiding the straightening of both the cartilaginous and bony portions of the septum. After the twelfth to fourteenth year the still remaining intranasal deflections and the outward deformities can be finally corrected.

The second class of nasal deformities are those either remaining uncorrected from childhood, or of traumatic origin.

Twenty cases of nasal deformity, before and after operation, were shown. These represented: 1, correction made by transplantation of bone or cartilage; 2, depressions raised by paraffin injections; 3, large external nasal deformities removed; 4, raising the tip of the nose; 5, shortening the length of the nose; 6, correction and straightening of the nose after submucous fractures.

F. E. Bunts said, in opening the discussion, that Doctor Metzenbaum's work had emphasized the fact that every injury of the nose should be properly set at the time of injury.

Myron Metzenbaum in closing said that he thought it in place to mention a hint that he had learned from Doctor Bunts: when a child



falls on its face and there is no evident injury to the nose, one should always insert into the nostrils two Kelly forceps wrapped with gauze; oftentimes there is heard a snap and a fracture of the septum is found.

## 2. Types of Endocarditis with Lantern Slide Demonstration, by W. T. Howard.

This condition may affect the valves or the wall of the heart; the walls of the ventricles and auricles, as well as the papillary muscles and the auricular appendages. He said that endocarditis of the latter is frequently overlooked. The pathological picture varies with the character and the extent of the lesions. The primary changes of endocarditis are seen in the living cells and the supporting tissue, the blood vessels, and the lymphatics. The changes in the endothelium are both proliferative and degenerative and vary from a slight proliferation of the surface cells and a slight accumulation of leucocytes in a small area, to the proliferation of the underlying tissues and large involvement and thickening. These changes cause protuberances or small local elevations at the affected areas—the excrescences commonly called vegetations. Upon such excrescences fibrin and blood cells, sooner or later, collect and the surface becomes ragged and irregular in appearance. This type of endocarditis may well be termed *Proliferative Endocarditis*.

In the pure state there is little or no necrosis, and from the anatomical and clinical standpoint, this represents the mildest form of endocarditis, and probably often ends in perfect or practically perfect restoration. Small and firm fibrous tissue nodules may remain in place of these granulations of the acute stage of the disease.

Succeeding the proliferation there may be necrosis, which may be limited to the nodule, or may extend into the deeper tissue; in the latter case the lesion falls into the second category—*Endocarditis associated with Necrosis*. 1. If the necrosis is superficial it involves the underlying tissue to a very slight extent and it may be focal or widespread. It is usually associated with leucocytic infiltration, inflammatory edema, and a proliferation of fibroblasts. The blood vessels are dilated and their endothelial cells may proliferate. They may become occluded by bacteria or by thrombi. Collections of leucocytes in small areas of necrosis may give the appearance of pustules—*Endocarditis Pustulosa*. Warty excrescences may form, or a typical false membrane such as is seen in connection with the necrotic inflammation of mucous membranes. When this condition heals there is often puckering, and often the formation of a smaller or larger amount of fibrous tissue.

Extensive and Suppurative Endocarditis is seen chiefly in connection with valve segments, but not infrequently it is seen involving the mural endocardium. In case the interventricular or interauricular septum is involved, perforation may result. Associated with this process there are all the usual changes found in a purulent inflammation, with granulation tissue formation. As a rule necrotic lesions tend to be covered by thrombus masses, which often obscure the other changes in the tissue. Bacteria may be present in the thrombus and in the tissue in astonishing numbers. The severe type of necrotic endocarditis is likely to be followed by adhesions of the valves, thickenings, curling, and calcification of the same, and of the pectinati.

From an anatomical and pathological standpoint it is not correct to classify endocarditis as vegetative, ulcerative, et cetera, for these conditions are usually secondary. An ulcerative endocarditis is merely one in which the necrotic areas are of considerable size. There is great difference in the opinions held as to how the organisms are carried to the valves; some claim that they are brought to the valves by means of the circulating blood, while others hold that they are brought to the valves by the way of their own blood vessels. It is impossible in many if not in most cases to determine the route of infection.

**3. Chronic Ulcerative Colitis and Ileitis with Polyp Formation, with Report of a Case, and Demonstration of Specimens, by J. H. Hewitt, M. D.**

Excressences and polypoid projections of the mucosa of the digestive tract are frequently found at post-mortem. The association of these excressences with inflammation of the intestines, or with a clinical history of dysentery, has also been mentioned occasionally from time to time. In 1721 Menzel described a case in which fifteen polypoid forms were projecting from the colon of a patient who had died of chronic dysentery. In 1832, Wagner noted that on the margin of healed dysenteric ulcers tiny polypoid excressences might occur. In 1839, Rokitsansky confirmed this observation and added that the polypi might be of any size. Other pathologists of this period confirmed the latter's findings. In 1861, Lebert reported the case of a woman who had suffered with chronic diarrhea, in whose colon at autopsy was found hundreds of small polypi. In the same year, Luschka described a colon that contained thousands of polypi, which covered the mucosa from the coecum to the anus. The polypi in this case consisted of glands, resembling those of Lieberkuhn, and some were dilated into cysts. These last two cases and one added by Virchow, in which the polypi were vesicular in character, and fluctuating, and from which gelatinous matter could be expressed, Virchow has given the name—Colitis polyposa, and to the last mentioned case—colitis polyposa cystica.

In 1881 Woodward described a colon that was ulcerated and inflamed throughout. In the lower part of the transverse colon were single follicular ulcers. These became larger and more numerous in the upper part of the descending colon, until a point was reached where the whole mucosa was occupied by a single large ulcer, on the base of which there were numerous islands of undestroyed mucus membrane. These islands were thick and twisted into fantastic forms. The whole mucus surface of the lower portion of the descending colon was occupied by a single ulcer, projecting from the base of which were thirteen polypoid excressences, of various size up to 14 mm. in length. Some were branched, some attached by a single pedicle, some by two pedicles. They were found to be composed of a central connective mucus tissue core on which was a peripheral layer of inflamed mucus membrane. The mucus membrane was absent from the flat surface of the intestine between the polypi, which area was composed of granulating tissue infiltrated with lymphoid cells.

The observation of this condition recently came under his observation. The patient was a man of 40, who was admitted to City Hospital on July 26th, 1913. His family history and personal history was unimportant. His illness began two months previously with frequent stools. In spite of medical attention these had persisted, and had recently been associated with great loss of weight and strength. On rectal examination a finger's length up the rectum could be felt a hard raised ring, and around it could be felt palpable polypoid masses. The blood examination showed a hemoglobin content of 50 per cent, and fairly marked anisocytosis and poikilocytosis. The feces were of a reddish brown color, and had a very foul odor, gave a positive test for bile, but no amoebae, or parasites or their ova. The patient remained at the hospital a little over three months, and died in the following November.

At autopsy the lesions of importance were noticed in the alimentary tract. The stomach, jejunum, presented nothing abnormal. The ileum was injected and in the lower two thirds showed pin-point areas of deeper injection as of beginning ulcers. In the lower ileum and in the coecum there were single ulcers, from a millimeter to a centimeter in diameter. The mucosa of the ascending and transverse colon is covered with a greyish layer, is moderately injected and in various areas is eroded to varying depths. Dotting these are many small islands of mucosa attached by slender connections to the sub mucosa. The de-



scending colon is likewise injected and eroded. Just above the sigmoid flexure are a few short polypous projections, measuring from 2 to 3 millimeters in diameter, and about the sigmoid flexure there is a cluster of large polypous masses. From here on the projections are more numerous. In all there are about 40 polypous projections. Throughout the colon there is great inflammation and ulceration, and exudation. He dwelt upon the microscopic appearance of the gut and the polypi giving a very clear description.

In summing up, he said that from the pathological findings it appeared that the patient about six months before death became affected with an acute inflammation of the rectum and descending colon, which extended up the course of the large intestine and into the ileum, where at post mortem, the most acute lesions were found. Following these lesions from the ileum to the rectum it appears that there was first an acute catarrhal inflammation involving the whole mucosa; later, simple ulcers were formed; these grew larger, coalesced with adjacent ulcers, till finally the whole mucosa was more or less eroded. The islands and tags of mucosa and submucosa depended for their preservation upon the vascular arrangement. Upon demand the vascular supply increased, with consequent hyperplasia of the fibrous and mucous tissues. The contraction of the new formed fibrous tissue caused the occlusion of many of the tubules, resulting in the formation of retention cysts, the cyst-like condition described by Virchow, though our specimen is not so cystic as that described by him.

W. T. Howard opened the discussion by saying that seven years ago he had had a specimen that was similar in many respects to that presented by Doctor Hewitt. The patient in his case had probably had an infection of the bowel. Last summer Doctor Wahl had autopsied a case at Lakeside Hospital in which several polypoid masses were found in the gut. This patient had been sick for two years with pulmonary tuberculosis and had a persistent diarrhea. A diagnosis of Tubercular Enteritis was made in her case. He said that he had seen a case where the colon was completely denuded of its mucous membrane, and he thought that this was just a step farther in this process. No single etiological factor can be cited as the cause of this condition.

C. E. Briggs said that the patient referred to by Doctor Howard as being autopsied by Doctor Wahl, had literally starved to death.

A case was cited of a man under treatment, aged 76, who has a fibroid tuberculosis of the left lung, and persistent diarrhea. Protruding from his anus are a number of rectal tags and that more of these are to be felt as far up the rectum as it is possible to palpate. He thought that in some cases tuberculosis might be the etiological factor.

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## EXPERIMENTAL MEDICINE SECTION

The seventy-third regular meeting of this Section was held Friday, February 13th, 1914, at the Cleveland Medical Library, with Chairman David Marine in the chair.

The program follows:

### 1. Arteriosclerosis of the Peripheral Vessels, by Oscar Klotz, Pittsburgh, Pa.

The basis of arteriosclerosis, like cancer, is unexplained. Enough work, both clinical and pathological, has been done, however, to guide us in further investigations. We may tend to feel that arteriosclerosis, like other affections, is a disease of modern times. This is erroneous, however, since dissection of mummies at least thirty-five hundred years old has shown unmistakable lesions of arteriosclerosis and authorities tell us that it was as common in Egypt during ancient times as it is in the modern world today, and that it was, moreover, of the same type.

The ancient Egyptians did not use alcohol, and were not subjected to

hard work, as the mummies dissected were those of the higher classes. They were also not meat eaters and did not depend on a protein diet. We should take these facts into account when considering the causes of arteriosclerosis.

At the beginning of the present studies on arteriosclerosis, the term was used to designate a thickened condition of the arteries with hardening, without entering into any discussion as to type. The main tendency today is to segregate the various diseases if possible and call them by distinct names. At present there is only one type, syphilitic arteritis or aortitis, whose identity is proved. It would be convenient if more such types could be worked out, but this seems impossible. A variety of insults on an artery will bring on similar diseases, so that the character of these is not a basis for indicating the etiological factor.

We have been studying too long the end products of arteriosclerosis and have not followed up closely enough the individual stages from incipency to termination. In the majority of instances not enough stress is laid on the early stages and the process of development.

In general there is one great feature to be observed in the study of arteriosclerosis. It is most protean in its development. It may develop in one or other system without effecting distant parts. There are types developed in certain parts and certain organs without any manifestations elsewhere. There are cases in which the vessels within the kidney proper are sclerosed and not elsewhere. Sclerosis is commonly found in the vessels of the limbs, especially the radials, without the lesions manifesting themselves in other parts. One of the radials may show an enormous sclerosis, while the other is unaffected, the sclerosis occurring usually in the more active limb. Perhaps the most common localization is in the iliacs and upper femorals.

Occupational sclerosis in the lower limbs is commonly seen in those who are obliged to stand or tramp about a great deal. Each individual indicates a certain activity of special parts, the limbs, internal organs, et cetera, and arteriosclerosis may show curious localizations, as in the vessels of the head, spleen, and in the hepatic artery. This is probably accounted for by the continuance of an unusual functional activity. A similar condition has been noted in the vessels of the eye. Arteriosclerosis, it is seen, may be scattered, attacking some parts and not effecting others.

The pathological varieties of arteriosclerosis occurring in the various systems are comparable, but are not identical. The differences observed are due, chiefly, to two factors, the different anatomical structure of the different parts affected and the difference in the functional activity of the various vessels. The variation in the type of arteriosclerosis observed then is due to variation in anatomical structure and functional activity of the parts attacked. All these lesions show certain types and groupings.

The varieties of arteriosclerosis observed in the aorta are varied. One type first manifests itself by the occurrence of fatty streaks. These latter are often but not invariably precursors of arteriosclerosis. These are arranged in a curious fashion in the posterior wall of the aorta. Subsequently fatty streaks are superceded by white thickenings from which the nodular thickenings of arteriosclerosis ultimately develop. The aorta actually undergoes a thickening of its middle layer. The same change is found in peripheral vessels, such as the mesenteric, splenic and iliac arteries.

The pathological processes which occur in the changes which we designate as arteriosclerosis group themselves under two main heads. Under the first we include those in which proliferative changes are observed from the beginning due to the presence of inflammatory processes, or where pearly white plaques develop in the absence of other changes. Inflammatory changes may be evident in one or all of the coats or they may occur in one at a time.

Under the second large head we place all those cases of arteriosclerosis in which the pathological changes are degenerative from the



beginning. Fatty change is present from the onset and the degeneration is due to certain types of toxic irritants.

Primary degeneration occurs generally in the deep layer of the intima and also in the media. The intima has a curious muscle coat which reacts by a curious overgrowth when the vessel is subject for a long time to high blood pressure. Fatty change then occurs. These cause atheromatous ulcers.

These two types just described may commonly exist side by side. They may occur at the same site and in the same tissue. The question in such cases naturally is, what was the primary injury? Did degeneration or proliferation occur first? This is the point which should be studied and information on it would lead us closer, probably, to the primary etiological factor.

Some of the proliferative changes indicate that excessive work has been thrown on the artery, through high tension and conditions which accompany the latter. Also it may occur when a vessel is trying to adjust the flow to some special organ. One can demonstrate hypertrophy which a vessel has undergone to respond to new work thrust upon it.

Hypertrophy from excessive work was well illustrated in the case of a woman aged 35, who had a severe pleurisy on the left side. She recovered and when after death from other causes an autopsy was performed it was found that the left lung was cramped in the upper and inner part of the thoracic cavity, to which it was bound down by firm adhesions and had evidently not been functioning. On the right side the lung filled the thoracic cavity. The arteries of the left lung were of normal size with thin elastic walls. On the right side the arteries showed enormous sclerosis. Their coats were enormously thickened and on gross examination resembled bronchi. They had evidently undergone hypertrophy with subsequent degeneration. In such cases although an artery can compensate for the extra strain by hypertrophy of the media there is a limit to such compensation, and when the cause, continued fatigue, intervenes with subsequent degeneration and sclerosis.

In a discussion of the causative factors of arteriosclerosis we must include excessive function which acts as indicated on the muscular coats of arteries. Intoxications from tobacco, nicotine, agents which cause high blood pressure such as adrenalin, and barium, which acts generally on viable tissue, muscle and endothelial tissues, must be considered. If any of these substances are used to a lesser degree they may cause proliferative changes. The use of larger amounts causes degenerative changes. Fatigue and the use of coffee leads to degenerative changes. The effect of alcohol has never been demonstrated. It causes many lesions, especially in the liver, but its etiological importance in arteriosclerosis has never been demonstrated. Lead poisoning is commonly cited as a cause but too much stress has been laid upon it.

Bacteria play an important part as causative agents of arteriosclerosis. They stimulate the onset of inflammatory changes. The purulent suppurative processes are the least important of these. In typhoid, syphilis and other infections in which arterial disease of various types occurs, a progressive tissue change is set in motion which results, ultimately in arteriosclerosis. Or, the tissue may be so weakened that other organisms are enabled to gain a foothold there later, although they would not be able to do so in normal tissue. Syphilis as an etiological factor is the best demonstrated in the infectious diseases. Here the organism gets to the arterial wall through the vasa vasorum of the outer coat. Here the early reaction is in the adventitia and media. The vasa vasorum run into the outer third of the media and in syphilis the lesions are to be observed about these vessels. Inflammation is present from the beginning, proliferation and degeneration occurring concurrent with it. The main danger in syphilis is that the resistance of the arterial wall is melted down in spite of the tissue proliferation. The scar tissue formed is not competent and gives way very easily.

In typhoid there is inflammation and proliferation of the outer coat

which follows the vasa vasorum and the lymph channels associated with the latter. There is a slight destruction of tissue and sclerosis sets in but the amount of the change is not sufficient usually to predispose to aneurism.

The changes in acute rheumatic fever are much the same. The heart suffers severely and myocardial disease is always associated. If we continue the study into other organs similar rheumatic nodules are found about other arteries. This condition is shown best in the skin and kidney. In the latter the glomeruli are particularly involved as well as all vessels leading to that structure. The reaction is the same as that observed about the nutrient vessels of arteries. The changes are not so marked, however, as in syphilis.

Experimentally, thirty-five animals were inoculated with organism isolated from cases of acute rheumatic fever. This organism belongs to the group streptococcus viridens, which is regarded as related to the ordinary streptococcus, but possesses qualities of its own. The smaller arterioles in the heart, kidney, meninges, diaphragm and mesentery showed inflammatory reactions. In the majority of the animals the heart lesions were commonest. The tissue from about the joints varied in showing the reaction. In the kidney the reactions were interstitial. The greatest reaction was about the smaller vessels. The glomeruli were sometimes involved. The prime reaction was acute but never suppurative inflammation. The reaction approached very closely to that observed in man.

The infections have a particularly important bearing on the development of arterial lesions of a particular character and all forms of arteriosclerosis cannot be thus explained. But if we can point to these infections as common causative factors they serve to explain much.

Blastomycotic infection shows intense reaction in the region of the arteries which if the patient recovered would probably lead to arteriosclerosis.

Another factor in etiology is the nervous factor. This cannot be determined by pathological studies. It has been suggested as a possible cause, but the truth of this assertion has never been proven. Experiments on animals have been introduced to clear up the matter, but complicating factors have prevented observation from this source.

Age is sometimes referred to as an influence tending toward arteriosclerosis. This is a factor only from the standpoint of long years of wear and tear which the vessels have necessarily undergone. The types of lesion which occur in such cases are mainly those occurring in the muscular tissue. In one senile aorta seen, between the elastic fibers of the media, distant from the source of nutrient supply the muscle cells had atrophied, fatty change had occurred and calcification of the media had finally resulted. Lesions of the same type in peripheral vessels might be included here, resulting in what is known as pipe stem arteries. The lumen of the vessels may be larger than normal. This is especially true in the iliacs and in the upper femorals. When these arteries undergo degenerative changes curious transverse pouches are formed. These are really aneurisms.

Is the Thoma theory that the intimal thickening of the arteries is due to slowing of the blood stream correct? In the Thoma theory it is believed that the first change is weakening of the media and that the intima thickens to fill in. But medial change cannot be demonstrated in a large number, especially of early changes. We need a newer and better explanation than this.

David Marine in opening the discussion said that he had heard of three cases of pipe stem arteries which during life had shown no calcification. According to one authority this might be due to the empty arteries filling with carbon dioxide after death, which combining with lime present there had been deposited as carbonate of lime.

W. T. Howard thought that the changes embraced under the head of arteriosclerosis are so varied that it is hopeless to try to work out



the etiology. In the last few years however, we have learned more about the subject. High tension is probably an etiological factor.

To have proliferation of the connective tissue of any organ there must have been previous injury of the part involved. Thoma has made use of this fact under the heading of secondary arteriosclerosis, occurring as for example in the vessels of the umbilical cord. Obliterating endarteritis is another process. In some of the cases of nodular arteriosclerosis one can demonstrate at the points of the connective tissue thickening, a corresponding thinning of the media. However, other cases do not show this, the media being uniformly thinned.

The part played by infections is doubtless important. One often sees lesions arising from these, fatty change of the intima and thickening of the wall. One is also impressed by the occurrence of lesions about the vessels in focal arteriosclerosis. Another point of interest is the enormous amount of proliferative change in the intima, below the endothelium of small vessels in meningitis, best seen in the tuberculous form of the latter.

T. W. Todd, relative to the negation of the nervous system as an etiological factor in the production of arteriosclerosis, said that the various work indicating such a conclusion had been done on rabbits. Similiar work done on dogs has shown that destruction of the nerve supply to the abdominal aorta was followed by focal thickening.

Some cases of cervical rib show arteriosclerotic symptoms. The treatment in such cases was to relieve the sympathetic nerves from pressure by excision of the rib, which lead to a return to normal.

H. N. Cole asked whether streptococcus haemolytica had been found in any of the cases investigated.

C. F. Hoover thought that in cases where arteriosclerosis and hypertonus coexist, disturbed metabolism is the etiological factor. An effort is always made to associate this condition with an infection or disturbed metabolism. He had never seen, however, a case of syphilitic aortitis associated with hypertonus. A patient with arteriosclerosis limited to the cerebral region always has hypertonus. We say that this is compensatory, yet, patients with syphilitic arteriosclerosis have an inadequate minute volume of blood through the encephalon yet we never see an associated hypertonus. It seems that the explanations offered thus far by pathological investigators is unsatisfactory, since there should be some common basis for this condition.

Oskar Klotz in closing the discussion said that the work referred to had been done on the aorta, where gritty material and atheromatous ulcers were found. When the radials feel beaded and ringed they may be broken and one specimen observed had actually been broken through and a callus formed on each side.

Relative to arteriosclerosis occurring in cases of cervical rib, one such case was observed which went on to gangrene which manifested itself in the finger tips. The presence of the cervical rib was not discovered in this case until the autopsy. The arteries in this case were suffering from lack of nutrition and showed the results of a secondary inflammation. The amount of fibrosis and shrinkage was secondary to the nutritional changes.

When arteriosclerosis and hypertonus are observed we are dealing with a sublatent arteriosclerosis of the diffuse type involving the kidney. The clinical manifestations of kidney disease may escape notice.

The streptococcus laemolytica has never been found in such cases in which the organism was isolated during life.

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## COUNCIL MEETING

At a meeting of the Council of the Academy of Medicine, held Wednesday, February 11th, 1914, at the Bismarck, the following members were present: The President, J. J. Thomas, in the chair; Doctors Yarian, Weir, Houck, Kopfstein, Lueke, Way, Marine, Follansbee, Sanford,

Updegraff, Ford and J. E. Tuckerman and, by invitation, S. L. Bernstein. The minutes of the last meeting were read and approved.

On motion the following applicants were elected to active membership: David Hyman, J. C. Carothers.

On motion the names of the following applicants for Active Membership were ordered published: Fred Aeberli, J. A. Huneer, Donald B. Lowe, David Selman, Thomas P. Shupe, Morris Wirtshafter, Isadore Zwick.

On motion Justin M. Waugh, Hood River, Oregon, was reinstated as a non-resident member of the Academy.

C. E. Ford asked to appoint the following as members of the Legislative Committee, leaving two appointments open for special work: R. E. Skeel, C. W. Eddy,

R. G. Perkins asked to reappoint the following as members to the Committee on Public Health: G. M. Morrill, J. C. Placak, C. H. Lenhart, E. F. Romig.

F. T. Kopffstein asked to reappoint the following members of the Membership Committee, leaving two vacancies to be appointed later: J. L. Bubis, Wm. Landgrebe, A. J. Pearse, S. J. Webster.

A. S. Storey did not report for his committee.

On motion the appointments to the Standing Committees were approved.

S. L. Bernstein requested that the Council go on record as favoring the opening of the Contagious Department of City Hospital to physicians generally.

The following motion was made by A. H. Lueke, seconded by F. T. Kopffstein:

Moved: That it is the sense of the Council that the Contagious Department of the City Hospital should be open to physicians not members of the staff, and that they should be allowed to treat their patients in that department.

On vote the motion was carried with the understanding that the matter be specially referred to the Academy for consideration separate from the approval of the minutes of the Council.

The question of clinical meetings at the several hospitals was discussed and the matter referred to the Program Committee.

## BOOK REVIEWS

**The Practical Medicine Series, Volume VII, Series 1913, Obstetrics.** Edited by Joseph B. DeLee, A. M., M. D., Professor of Obstetrics, Northwestern University Medical School, with the collaboration of Herbert M. Stowe, M. D. The Year Book Publishers, Chicago. Price, \$1.35.

This little volume, one of a series of ten issued annually to review the literature in the various departments of medicine and surgery, is sure to receive the warm reception to which its predecessors have entitled it. A better summary of the year's work in obstetrics would be hard to find. The articles chosen for review have been judiciously picked, and the editorial comments are most sane and valuable. In fact these notes by Doctor De Lee form one of the most valuable features of the book. Whenever a writer tends to ride a pet hobby too fast and too far, a sage and shrewd paragraph from the editor may be counted upon to unseat him.

The Abderhalden sero-diagnosis of pregnancy continues one of the live issues in obstetrics. Although reports of the accuracy of this test are somewhat conflicting, Doctor De Lee believes that Abderhalden has proved his claim to the specificity of this test. The reviewer is willing to admit this; but after a series of unsatisfactory tests of his own during the past year, he believes that the technique is such that results of value cannot be obtained by the average laboratory worker. Even in the hands



of experts, the technique if not the reaction itself, must be considered open to question.

Stronganoff's return to ancient methods of treating eclampsia by the use of narcotics, without the emptying of the uterus, earns a deserved protest from Doctor De Lee.

Another most valuable editorial word of warning is in regard to the newest-found obstetrical cure-all, Pituitrin. The value of this drug in selected cases is certainly very great; but the gynaecologists are beginning to reap the harvest of lacerations caused by the precipitate labors the drug induces.

We hope to see the time when the Walcher position will no longer be recommended, as it is on page 145. We do not believe this posture can be used without a resulting sacro-iliac relaxation that will cause the patient much future pain.

The use of the rectal examination for obstetrical diagnosis is emphasized on page 191. This is a most valuable method, one free from the dangers of vaginal examinations, and one that with experience gives almost as much information. We have often been surprised at the silence of the text-books on the subject.

J. T. S., Jr.

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Diseases of the Stomach, Including Dietetic and Medicinal Treatment.

By George Roe Lockwood, M. D., Professor of Clinical Medicine in Columbia University; Attending Physician to Bellevue Hospital, New York. Illustrated with 126 engravings and 15 plates. First Edition, 624 pages. Price \$5.50. Lea & Febiger, Philadelphia and New York.

This work has been written largely from the standpoint of personal experience and the series of cases grouped and analyzed and results noted from the author's cases as he observed them. In those cases in which his personal observations have been at variance with the generally accepted views, this fact is noted and free discussion given.

A very striking feature of such a monograph is the elision of all matter concerning the normal anatomy, histology and physiology. Chapter X according to the table of contents deals with anatomy, but we find upon reading the chapter that it is *atony* and not *anatomy* upon which the author has written.

The chapters upon "Acute and Chronic Ulcers" and "Erosions and Rare Ulcers" are especially good and furnish a fund of information. The illustrations are well chosen and excellently reproduced. As a monograph upon diseases of the stomach, this volume can well be recommended.

H. O. R.

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Blood-Pressure, From The Clinical Standpoint. By Francis Ashley Faught, M. D., of the Medico-Chirurgical College, Philadelphia. Octavo of 281 pages, illustrated. Price \$3.00 net. W. B. Saunders Company, Philadelphia and London, 1913.

About ten years ago for the first time were blood pressure observations made systematically in the larger hospitals. During the past six years due largely to the perfection of convenient portable instruments such as the Tycos, Faught and others, the general practitioner has been making regular observations, greatly to the advantage of his patients. In the present volume the author has endeavored to give in systematic form a general outline of our knowledge obtained by blood pressure studies. The first chapter is devoted to the physiology of the circulation, but is so brief and elementary that it would have been better to have omitted it entirely. The chapters on the sphygmometer and its use are very full and complete. The remainder of the book is taken up with a consideration of the blood pressure in different conditions, which come under the observation of the internist, the surgeon and the obstetrician. At the end there is a good summary of the treatment of hypertension. Altogether the book will prove of great value to the general practitioner and will fulfill the purpose for which it was intended.

J. P.

**Causes and Cures of Crime.** By Thomas Speed Mosby, Member of the American Bar; Former Pardon Attorney of the State of Missouri; Member American Institute of Criminal Law and Criminology. C. V. Mosby Company, St. Louis, 1913.

This small volume on criminology written by a lawyer is an extremely able and thorough presentation of the subject. The subject is treated in a very satisfactory manner from the medical, legal and social points of view. A valuable feature of the book is the great number of quotations from the leading authors where they may have a bearing on the point under discussion.

He states that, "It is doubtful if even Rome before the time of the Justinian was more plagued and vexed with laws than we are," and states that in some parts of the United States the citizen is governed by more than sixteen thousand separate and distinct statutes, supplemented, modified and construed by myriad of court decisions—and the citizen is presumed to know them all.

He says that a body of law so voluminous and complex as to be wholly beyond the knowledge of the average man must inevitably lose sympathy and respect of the public.

Among the 462 criminals examined by Marro 18 per cent had become criminals before reaching the age of thirteen. Of 43,835 German criminals, N. David found 41 per cent under twenty-one years of age. Of a group of forty-six criminals studied by Lombroso thirty-five had become addicted to crime before attaining the 16th year.

Hosby found the age of maximum criminology in United States to be twenty-three.

The author makes this curious observation, "It is noteworthy also that nearly all tubercular prisoners are convicted of some crime of violence such as homicide, rape, burglary; due, doubtless, to a weakened condition which is reflected in a kind of morbid aggressiveness." Mosby believes that the man who is natural mentally and physically is naturally adverse to crime.

In view of the interesting work done today in relation of feeble mindedness to crime it is interesting to quote the following:

"As early as the seventeenth century Sir Mathew Hale, author of the first great compendium of criminal law, and himself the greatest lawyer of his age, declared: 'Most persons that are felons—are under a degree of partial insanity when they commit these offenses.'"

The author quotes one penitentiary official who had handled more than fifteen hundred convicts—a man who learned his criminology, not from books, but from the living subject, as believing that all criminals are crazy.

Mosby calls attention to the interesting fact that a man may be an arrant and incorrigible forger and yet could not be induced to commit a murder or ravish a woman, and believes that this peculiarity will nearly always be found in the habitual criminal. He cites cases where a horse thief was serving his fourth term for that offense. Another man was serving his third term for bigamy and he had never been accused of any other crime, but was kind-hearted, sober, and honest in every particular. Another was a forger and had served a penitentiary sentence in three States, and who had always forged a check for only \$10.00. He also cites the case of "Dutch Charley", who lived to a very great age and served thirteen terms of two years each in the Missouri penitentiary besides a few terms in other States, for obtaining money under false pretenses in real estate transactions. The author believes that it is idle to assert that such people are absolutely normal mentally.

The author does not believe that punishment for crime has very much influence in its prevention, nor in reforming the criminal and favors the idea of Samuel Royce, some thirty years ago, that "Neglect man's moral training and he becomes a monster. Train him exclusively for industry and he becomes a machine. Train exclusively his moral



faculties and he becomes a zealot. Train exclusively his intellect and he becomes an iceberg or a heartless villian. Thus a one-sided education spoils a man and makes of the intended king of the cosmos a maniac, pauper, criminal or villian."

Mosby believes the "joy, beauty, utility, everlasting glory of honest work and the eternal disgrace of indolence—these should be among the first lessons impressed upon the youthful mind, and the father who so instructs his son at home may save the State the trouble and expense of attempting to do so later."

He calls attention to the "mugging system" abuse where photographs are preserved in the "rogues' gallery", and it was found in Chicago that 55 per cent of the cases brought to the Bureau to be photographed and described were later discharged not guilty.

The author is strongly opposed to capital punishment and after a thorough investigation he says that murder is as frequent in states where capital punishment exists as in other states, and it has even happened that in states that have had periods where murder was punished by capital punishment and where it was not that homicide was more frequent during the time the death penalty law was in force. The author is enthusiastic about indeterminate sentence and parole.

W. B. L.

**The Practical Medicine Series, Volume X.** Series 1913. Nervous and Mental Diseases. Edited by Hugh T. Patrick, M.D., Professor of Neurology in the Chicago Polyclinic, Clinical Professor of Nervous Diseases in the Northwestern University Medical School; Ex-president Chicago Neurological Society, and Peter Bassoe, M.D., Assistant Professor of Nervous and Mental Diseases Rush Medical College. The Year Book Publishers, Chicago.

This small volume reviewing the year's work on Nervous and Mental Diseases, edited by Doctor Hugh T. Patrick and Doctor Peter Bassoe, is a very valuable digest of the work done during the past year in this field.

The abstracts are well selected, being limited strictly to the most valuable articles that have appeared during the year, and also the number of selections from foreign Journals and Journals not ordinarily seen by the neurologist makes this small volume of more use than some of the larger reviews on this subject.

W. B. L.

## ACKNOWLEDGEMENTS

**Practical Sanitation.** A handbook for Health Officers and Practitioners of medicine. By Fletcher Gardner, M.D., Captain Medical Corps Indiana National Guard; First Lieutenant Medical Reserve Corps, United States Army; Health Commissioner of Monroe County, Indiana, and James Parsons Simonds, B.A., M.D., Professor of Preventive Medicine and Bacteriology, Medical Department, University of Texas; Lately superintendent, Indiana State Laboratory of Hygiene. Illustrated. L. V. Mosby Company, St. Louis, 1914. Price, \$4.00.

**Diagnostic Methods.** A Guide for History Taking, Making of Routine Physical Examinations and the Usual Laboratory Tests Necessary for Students in Clinical Pathology, Hospital Internes and Practicing Physicians. By Herbert Thomas Brooks, A.B., M.D., Professor of Pathology, University of Tennessee, College of Medicine, Memphis, Tennessee. Second Edition, Revised and Rewritten. C. V. Mosby Company, St. Louis, 1914. Price \$1.00.

**Gunshot Injuries.** How They Are Inflicted, Their Complications and Treatment. By Colonel Louis A. Lagarde, United States Army Medical Corps, Retired. Late Commandant and Professor of Military Surgery, U. S. Army Medical School; Professor of Military Surgery, Medical Department N. Y. University, etc. Prepared under the Direction of the Surgeon General United States Army and Published by Authority of the Secretary of War. William Wood and Company, New York, 1914. Price \$4.00 net.

**Anatomy and Physiology—A Text-Book for Nurses.** By John Forsyth Little, M.D., Assistant Demonstrator of Anatomy, Jefferson Medical College, Philadelphia. 12mo., 483 pages, with 149 engravings and 4 plates. Cloth, \$1.75 net. The Nurses' Text-Book Series. Lea & Febiger, publishers, Philadelphia and New York, 1914.

**Diagnosis in the Office and at the Bedside.** The Use of Symptoms and Physical Signs in the Diagnosis of Diseases. By Hobart Amory Hare, M.D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College of Philadelphia. New (7th) edition, thoroughly revised and rewritten. Octavo, 547 pages, with 164 engravings and 10 full-page plates. Cloth, \$4.00 net. Lea & Febiger, Philadelphia and New York, 1914.

**Infections of the Hand. A Guide to the Surgical Treatment of Acute and Chronic Suppurative Processes in the Fingers, Hand and Forearm.** By Allen B. Kanavel, M.D., Assistant Professor of Surgery, Northwestern University Medical School, Chicago. New (2nd) edition, thoroughly revised. Octavo, 463 pages, with 147 illustrations. Cloth, \$3.75 net. Lea & Febiger, Philadelphia and New York, 1914.

**The House-Fly and Diarrheal Disease Among Children.** By Donald B. Armstrong, M.A., M.S., M.D., Superintendent, Bureau of Public Health and Hygiene, Department of Social Welfare, New York Association for Improving the Condition of the Poor, New York Reprint.

**Public Laundries in America.** By Donald B. Armstrong, M.D., Superintendent, Bureau of Public Health and Hygiene, New York Society for Improving the Condition of the Poor, New York, Reprint.

**A Report on the Typhoid Fever Epidemic in Manhattan, 1913.** By The Central Council of Public Health of the City of New York, Reprint.

**Baths vs. Disease—The Problem in Rural Districts.** By Donald B. Armstrong, M.A., M.S., M.D. New York, Reprint.

**Heat and Infant Mortality.** By J. W. Schereschewsky, Surgeon United States Public Health Service. Reprint No. 155, Public Health Reports, 1913. Government Printing Office, Washington.

**Tuberculosis Sanatorium, Fort Stanton, New Mexico.** Report for the Year Ended June 30, 1913, of the Sanatorium Maintained by the Public Health Service for the Treatment of Tuberculosis Patients. By F. C. Smith, Passed Assistant Surgeon, United States Public Health Service. Reprint No. 145 Public Health Reports, Oct. 17, 1913. Government Printing Office, Washington.

**Typhoid Fever and Gastroenteritis.** A Report of an Outbreak Among Passengers of the Steamship Rochester, September-October, 1913. By Hugh de Valin, Passed Assistant Surgeon, United States Public Health Service. Reprint No. 157, Public Health Reports, 1913.

**Tuberculosis in Switzerland.** Results of the Campaign against the Disease. A resume of an article appearing in the Bulletin of the International Office of Public Hygiene, Paris (Tome V, No. 10, October, 1913), under the title "L'Etat Actuel de la Lutte Contre la Tuberculose en Suisse," by M. le Dr. F. Schmid, Director of the Swiss Federal Sanitary Service, Delegate of Switzerland on the Committee of the International Office of Public Hygiene. By W. C. Rucker, Assistant Surgeon General, and R. A. Kearny, Assistant Surgeon United States Public Health Service. Reprint No. 158, Public Health Reports, 1913.

**Malarial Index Work.** Methods Used in Obtaining Blood, Making Blood Smears and Staining. By R. H. von Ezdorf, Surgeon, United States Public Health Service. Reprint No. 159, Public Health Reports, 1913.

**Malarial Fevers.** Prevalence and Geographic Distribution in Arkansas. By R. H. von Ezdorf, Surgeon, United States Public Health Service. Reprint No. 160, Public Health Reports, 1914.



**The Wilmington (N. C.) Water Supply.** An Investigation Made During November and December, 1913. By Earle B. Phelps, Professor of Chemistry, Hygienic Laboratory, United States Public Health Service. Reprint No. 161. Public Health Reports, 1914.

**Experimental Insect Transmission of Anthrax.** By M. Bruin Mitzmain, Veterinary Entomologist, Government of the Philippines. Reprint No. 162, Public Health Reports, 1914.

**List of Bulletins and Circulars to January 1, 1913.** Published by Purdue University Agricultural Experiment Station, LaFayette, Ind.

**Publication No. 8.** Issued by the Medical Faculty, Queen's University, Kingston. January, 1914.

**Pennsylvania Health Bulletin.** Published by State Department of Health, Harrisburg, Pa. Nos. 42, 43, 44, 45, 56.

**Monthly Bulletin, New York State Department of Health, Vol. IX, No. 1.** January, 1914.

**Weekly Bulletin of the Department of Health of the City of New York, Nos. 4, 5, 6.**

**Seventh Annual Report of New York Milk Committee.** 1913.

**Monthly Bulletin, Ohio State Board of Health, Vol. IV, No. 2,** February, 1914. Columbus, Ohio.

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## MEDICAL NEWS

**The Weber Memorial Fund Memberships.**—Through the generosity of friends of the late Doctor Gustav C. E. Weber, a sum of money has been subscribed which is to be called the Weber Memorial Fund, and is to be invested in perpetuity for the Medical Library Association. On account of Doctor Weber's interest in young men in the medical profession it has been decided by the Council of the Medical Library that the income from this fund shall be devoted to providing memberships in the Library.

These memberships are especially designed for young men who are starting on their medical career, and who are anxious to take advantage of the opportunities the Library offers.

About 18 such memberships will be available for the year 1914. Applications for membership may now be made to the Secretary of the Library, 207 Osborn Building.

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**Doctor Lederle's Retirement.**—After a service of almost twenty years in the Department of Health of New York and twice Commissioner of Health, Doctor Lederle resigned as Commissioner of Health on Feb. 1, 1914. In recognition of his splendid service to the Department of Health and to the cause of public health generally, the Board of Health at its last meeting, adopted the following resolution:

Resolved, That the Board of Health of The City of New York at the close of the long career of high public service of Doctor Ernst J. Lederle, Commissioner of Health of The City of New York, hereby spreads upon its minutes this mark of its appreciation of the splendid vigor, profound and enlightened intelligence and lofty spirit of devotion which have characterized his fulfillment of his trust. During his administration of the Department, the causes of preventable disease have been sought out, studied, and, as far as possible, eliminated with a gratifying resultant improvement of general health of our people and reduction in the death rate. The multifarious activities of the Department have been systematized and brought to a high state of efficiency. For these things, this Board, of which he has been a member for so long, desires to express the esteem his character and service have called forth, and of them, to make public record of this official recognition.

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**Testimonial Dinner to Doctor Hermann M. Biggs.**—Two hun-

dred friends and colleagues, themselves leaders in New York City of large affairs, paid a tribute of well deserved homage to Doctor Hermann M. Biggs at a testimonial dinner held at the Hotel Biltmore, on Saturday evening, Feb. 7, the occasion being the retirement of Doctor Biggs from active service in the Department of Health. The speakers of the evening were Doctor William H. Welch, who described Doctor Biggs' contributions to preventive medicine; Mr. Robert W. De Forest, who spoke of his services to the poor of New York City; Doctor William H. Park, who sketched his work in the Department of Health, and Hon. Marcus M. Marks, who outlined the City's debt to Doctor Biggs. Doctor George D. Stewart acted as toastmaster.

Seated at the guest table besides the speakers mentioned were Doctor T. Mitchell Prudden, Doctor Stephen Smith, Doctor A. Jacobi, Doctor William M. Polk, and Doctor L. F. Barker.

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**Social Meeting and Smoker.**—The Academy of Medicine, of Cleveland, held a social meeting and smoker on the evening of Tuesday, March 10, at 8:15 o'clock at the Cleveland Medical Library, to meet Doctor Gustave Monod, of the University of Paris, who has been sent to this country by the French Government to inquire into the American organization of graduate study. During the evening Doctor Monod showed two moving picture films, one showing the Movement of the Intestines Under Artificial Circulation, and the other a Study on the Retarded Cinema of the Movements of Athletes in Action. The latter film was shown last summer at the Physiological Congress in Gröningen.

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**Special Pavilion for Hospital Care of Venereal Diseases.**—An annex to the Long Island College Hospital has been erected in the rear of the main hospital buildings, in Henry Street, Brooklyn, and is now open for patients. This annex, which is devoted solely to venereal diseases, is a welcome addition to the hospital facilities of this city, for with the exception of possibly one or two hospitals, patients suffering with syphilis, or gonorrhea and its complications, and needing hospital treatment, have heretofore been forced to enter public City hospitals. This new pavilion is two stories in height and has accommodations for sixty male patients. It is so arranged that the two classes of patients are entirely separated, the upper floor being for gonorrheal patients and the lower for syphilitic patients, with complete equipment of dressing rooms, toilet and bath rooms on each floor, and separate dining rooms. For patients who are willing to pay a little more for greater privacy, two small wards, one on each floor, with four beds each, have been provided. The patients are to receive the most modern treatment, and the nursing is under the care of experienced male nurses. Members of the medical profession and others interested in the work of this department are invited to visit the annex, or to communicate with any member of the staff or with the Superintendent of the hospital, for further information regarding the work or for the reception of patients.

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**Fifteen Nations to Send 6000 Nurses to the Panama-Pacific International Exposition at San Francisco.**—A tidal wave, white-capped and wide-reaching, is scheduled to overflow the streets of San Francisco early in June, 1915. The force of the inundation will reach its maximum at the grounds of the Panama-Pacific International Exposition; but no one need prepare to flee to the hills. The flood will be a beneficent one—made up of white-capped, polyglot Angels of Mercy—more than six thousand trained nurses; the pick of the great hospitals and training schools of Europe, Asia, the two Americas and the isles of the sea.

Four congresses or conventions of these alleviators of suffering will hold their triennial sessions at the Exposition: The International Asso-



ciation of Nurses, representing fifteen foreign nations, including England, Ireland, Germany, France, Belgium, Italy, and others, with Australia, China and Cuba; The American Nurses' Association, with 22,000 members, of which Miss Genevieve Cook, of San Francisco, is president; the National League of Nurse Education, numbering 12,000 members, chiefly educators and superintendents of training institutes; the Organization of Public Health Nurses, with an equal number of members, whose labors have to do particularly with public-health, tuberculosis, settlement work, social service and the like; and finally the California State Nurses' Association, which will act the part of hostesses to the foreign contingent.

Announcement of the coming of these large bodies of women workers—for there is scarcely a man among them—was made by the president of the International Association, Doctor Helen Parker Criswell, on her return from a four months' tour of Europe in the interests of the exposition.

"Everywhere—in Paris, London, Brussels, Berlin, Rome, and in the provinces," said Doctor Criswell, "I found the nurses and the officials of the foreign training schools and organizations full of enthusiasm, for the meeting at the exposition. The attendance from European countries will be enormous; and in addition to the congresses, these organizations are uniting in the preparation of a comprehensive exhibit of all modern hospital appliances, besides an historical exhibit, a model mortuary, and demonstration wards. These exhibits, with the demonstration hospital, will be maintained during the ten months of the exposition. We expect that at least fifteen countries will be represented, with over 6,000 delegates. The American branch, of which Miss Genevieve Cook of San Francisco is president, will take a prominent part, as will the two closely allied national nurses' organizations. These are distinct from the Red Cross, which also will hold a congress at about the same time."

**Examination of Candidates for Assistant Surgeon.**—Treasury Department United States Public Health Service. A board of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, S. E., Washington, D. C., on Monday, March 9, 1914, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service. Examinations will be scheduled to be held at other stations of the Service at a later date.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character, one preferably being from a Doctor of Medicine. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two year's professional work.

Candidates must be not less than 5 feet, 4 inches, nor more than 6 feet, 2 inches in height, with corresponding weight from 128 to 183 pounds.

The following is the usual order of the examinations: 1, Physical; 2, Oral; 3, Written; 4, Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and that they will serve wherever assigned to duty.

The examinations are chiefly in writing, and begin with a short autobiography of the candidates. The remainder of the written exercise consists of examination in the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital.

The examination usually covers a period of about ten days.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments.

After four year's service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Assistant surgeons receive \$2,000, passed assistant surgeons \$2,400, surgeons \$3,000, senior surgeons \$3,500, and assistant surgeon generals \$4,000 a year. When quarters are not provided, commutation at the rate of \$30, \$40, and \$50 a month, according to the grade, is allowed.

All grades receive longevity pay, 10 per cent in addition to the regular salary for every five year's service up to 40 per cent after twenty year's service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."

**Examination of Dentists for the U. S. Army.**—The Surgeon General of the Army announces that examinations for the appointment of Acting Dental Surgeons will be held at Fort Slocum, New York; Columbus Barracks, Ohio; Jefferson Barracks, Missouri; Fort Logan, Colorado; and Fort McDowell, California, on Monday, April 13, 1914.

Application blanks and full information concerning these examinations can be procured by addressing the "Surgeon General, U. S. Army, Washington, D. C."

The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between 21 and 27 years of age, a graduate of a dental school legally authorized to confer the degree of D. D. S., and shall be of good moral character and habits.

Acting Dental Surgeons are employed under a three-year contract, at the rate of \$150.00 per month. They are entitled to traveling allowances in obeying their first orders, in changing stations, and in returning to their homes at termination of service. They also have a privilege of purchasing certain supplies at the Army commissary. After three years service, if found qualified, they are promoted to the grade of dental surgeon with the rank of first lieutenant, and receive thereafter the pay and allowances appertaining to that rank.

In order to perfect all necessary arrangements for the examination, applications must be in the possession of the Surgeon General at least two weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present 28 vacancies to be filled.

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## CORRESPONDENCE

*Editor Cleveland Medical Journal:*

I plead for the abolition of the practice of brushing passengers in the body of a Pullman coach. The traveling public seems to be totally unaware of the effect of this practice on fellow passengers, and its danger to their health. I have seen the health officer of a big city and the head nurse of a medical dispensary stand up while the porter transferred the dust from their garments upon their fellow passengers. The Pullman Company claim to have some rules requiring the brushing to be done in the little narrow hall. This works a hardship to passengers in either end of the coach. What is needed is total prohibition of the practice in the coach, and the archaic whisk broom replaced by a modern process for the accommodation of those who wish the service.

(MRS.) S. LOUISE PATTERSON.

East Cleveland, O., March 5, 1914.



# The Cleveland Medical Journal

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## REPORT OF HOUSING CONDITIONS IN CLEVELAND IN 1913

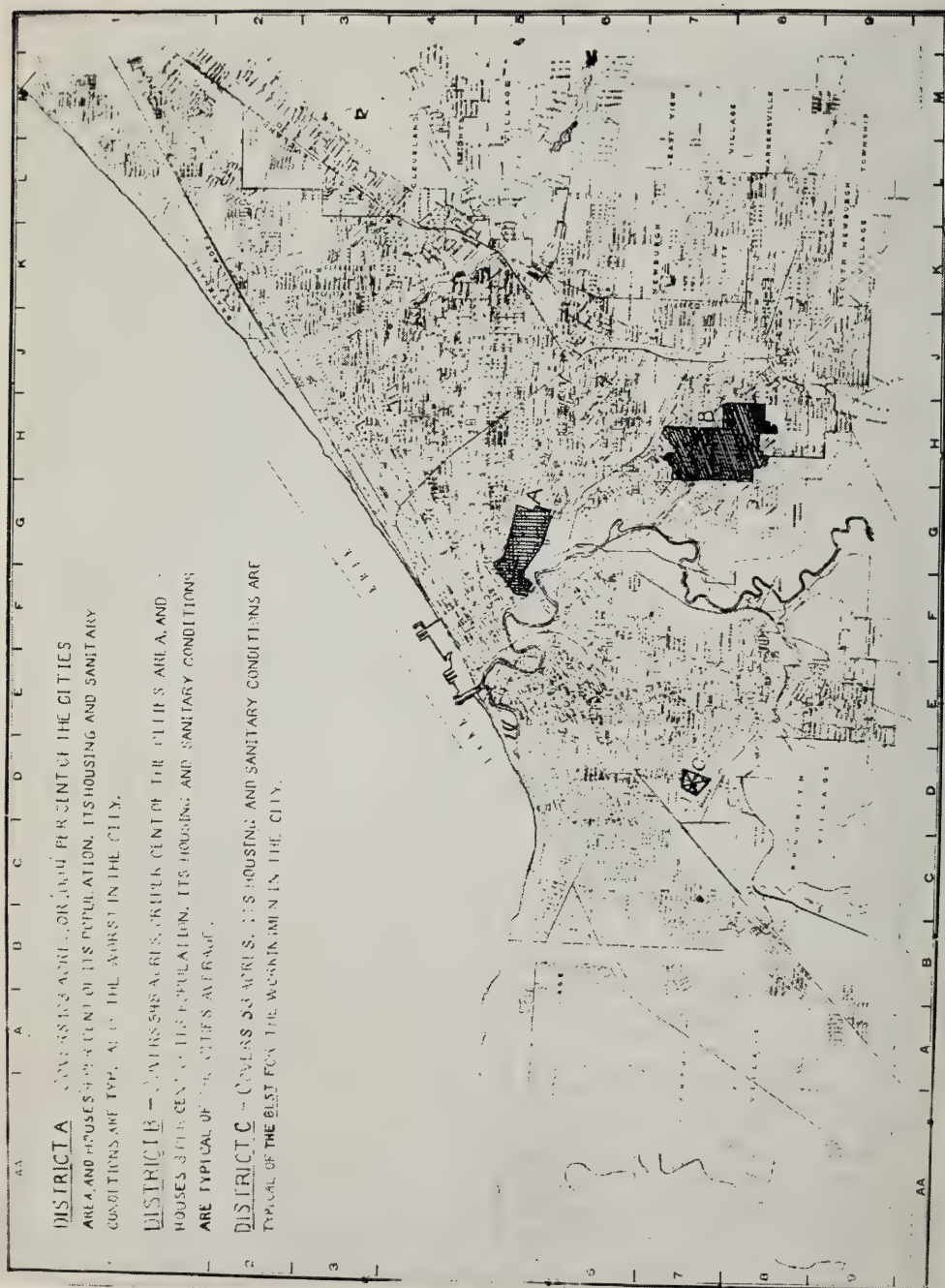
Made by MILDRED CHADSEY, Chief of Bureau of Sanitation, Division of Health, Department of Public Welfare, City of Cleveland.

Acknowledgement is hereby given to the following students in Doctor R. G. Perkins' class in Hygiene: E. A. Bennett, M. A. Blankenhorn, P. C. Carson, W. B. Griesse, I. M. Jarzynski, L. E. Leavenworth, I. W. Matuska and C. C. Starkes; and to the students in Doctor J. E. Cutler's class in Sociology, at Western Reserve University, and to the sanitary policemen, who collected the data from the field.

CLEVELAND—SIXTH CITY! This fact is heralded broadcast by all loyal Clevelanders, not as a boast but as a boost. Cleveland has grown to Sixth City through the development of its industries. If it is to continue to grow, more people are needed to man the great industrial machines that are grinding out its prosperity and its progress, and so we are inviting them to come. It is easy to learn what the city has to offer in the way of employment. Many people are willing to give this information, for many people know. It is the purpose of this study to show what Cleveland has to offer in the way of housing conditions—facts that few people know and few people care to know, for it is accepted as a matter of course, under our present industrial organization, that to work is the chief end of life. Nevertheless, when we realize how living conditions affect the efficiency of the worker, and that if he cannot live in an environment that is not dangerous to health, safety and morality, he becomes not an asset but a liability to the community, we grant that it is not impertinent for him to ask not only "Where can I work," but also "Where can I live."

To answer this latter question, an investigation of housing conditions in three parts of the city has been made. The districts investigated were chosen because they were considered typical of the best, the average and the worst housing conditions of the working classes, and because each district was considered typical

of much larger areas throughout the city. The inhabitants of these districts are necessarily in different industries, as the different sections of the city afford them varying opportunities for labor, but they are for the most part laborers, factory hands, machinists and clerks, and their earning capacity is about the same in the three districts, varying from \$10.00 to \$25.00 per week.



No. 1—Map showing the location of the three districts that were investigated.



### Scope of Investigation

The three districts investigated cover a combined area of 503 acres, and include 3,716 dwellings and tenements, in which 5,784 families of 38,410 people are housed. Therefore the investigation covers 1.5% of the city's area and includes 5% of its houses and almost 7% of its population. It is obvious that it does not cover a sufficient territory or include enough houses or enough people to draw city-wide conclusions. It does, however, show what conditions exist in certain districts that are typical of larger districts throughout the city where working people live.

District A includes the territory between Central and Scovill Avenues on the north; East 34th St. on the east; the Nickel Plate tracks on the south; and Central Viaduct on the west. It covers 103 acres and includes 1,732 dwellings and tenements, in which 3,397 families of 21,480 people are housed. This makes an average of 16 houses per acre and 208 people per acre. It covers .004% of the city's area and houses 4% of its population. It is the most congested district in the city.

One end of the district lies in the center of the city and is rapidly being encroached upon by business. Because it is in the center of the city and therefore accessible from all points, its inhabitants find their employment in almost every kind of work.

There are many Americans and Negroes, some Germans, some Slavs and other races, but the majority are Russian Jews and Italians, who find their employment in the nearby factories, in the small shops and at the peddler's and huckster's wagon. Some of the oldest houses in the city are in this district and many of the tenements are mere aggregations of these old houses. Much of the land is valuable for business and is being held for increased land value rather than for tenement house purposes. The owners, however, in the meantime desire to pay taxes from the rent income of these houses, which they are not willing to repair, and as a result some of the worst housing conditions in the city are in this district.

District B includes the territory between Barkwell and Portage on the north; Harvard Grove Cemetery and Tinker's Creek on the south; East 71st St. on the east; and East 49th St. on the west. It covers 348 acres and includes 1,828 dwellings and tenements, in which 2,284 families of 16,012 people are housed, an average

of 5 houses per acre and 46 people per acre. It covers 1% of the city's area and houses 3% of its population. This district is about 30 minutes by street car from the center of the city and is representative of one of the many industrial districts. It is



No. 2—A row of frame houses that have been allowed to fall into a bad condition of repair and sanitation.

near steel plants, brick yards and woolen mills, in which most of its population find employment. Its inhabitants are mostly Poles and other Slavs. Many of these people have a higher



standard of so-called thrift and economy than of comfortable living, though the majority of them own or are purchasing their own homes. The determination to own property at any sacrifice, such as sending the women and children to work, keeping of



No. 3—Substantially built houses that are owned by workingmen.

lodgers and the practice of frugal living, combined with the inability to meet any of the city requirements regarding property, such as the installation of sanitary plumbing with sewer con-

nection, because the houses are already heavily mortgaged, makes one hesitate to encourage the working man too heartily in owning his home. Most streets in this district are made up of small dwellings that are sanitary, wholesome and safe, but altogether unattractive. Jacob Riis must have seen a district like this with its miles of somber, angular, unpainted frame houses when he coined the phrase, "A city Wilderness." However, many streets in this district are splendid examples of genuine thrift and comfortable living in attractive houses surrounded by green lawns and gardens. This district is typical not only of Cleveland's average housing conditions but of the majority of its areas where working people live.

District C includes the territory between Storer Avenue on the north; Denison Avenue on the south; West 58th St. on the east, and West 65th St. on the west. It covers only 50 acres and includes only 156 dwellings in which 193 families of 918 people are housed, an average of 3 houses per acre and 18 people per acre; thus showing that conditions in this district are much above the average for the city.

It is almost an hour's ride by street car from the center of the city and is removed from all industries except the stock yards. Most of its inhabitants are Germans and Bohemians, who work in various sections of the city and who have gone to this new part in order to buy inexpensive homes. This district is typical of many new allotments that are opening up in the outskirts of the city. Scarcely any of the houses are more than 5 or 6 years old and many of them were built before the streets were sewered or paved, but now that the streets are sewered, the owners of property are installing sanitary plumbing. The houses are substantially built and are surrounded by attractive lawns and gardens. It is typical of the best housing conditions of working people in the city.

### **Lot Overcrowding**

Out of the total number of houses, 3,281, or 88%, are the only buildings on the lot. 382, or 10%, are on the rear of the lot, the front of which is occupied by another building. 53, or 1.4%, are on the center of the lot, the front and rear of which are occupied by other buildings. The word "building" in this case applies only to dwellings, tenements and business blocks. Barns, sheds and like structures have not been taken into consideration.



In addition to the lots that are occupied by center and rear buildings, 135 lots are excessively overcrowded with barns and sheds.

District B has only 108 of its houses on the rear of the lot,



No. 4—A row of frame houses in good condition of repair and sanitation and possessing attractiveness—Fortunately Cleveland has many miles of such streets.

one on the center, and 5 yards that are overcrowded with sheds and barns. District C has only 2 houses on the rear of the lot, none on the center and no yards that are overcrowded with sheds

and barns. District A has 272 houses on the rear of the lot and 52 on the center of the lot. In addition to this it has 130 lots that are excessively overcrowded with sheds and barns.

It is evident that lot overcrowding is not general, but that



No. 5—Lot overcrowded with frame tenements—Note the row of vault-closets and the yard littered with garbage and rubbish—Such conditions breed disease.

it is very extreme in district A, as would be expected when we realize that there are 16 houses and 208 persons per acre. Most of the overcrowding is caused by the practice of moving old



buildings to the rear and center of the lots and erecting new buildings on the front of the lots. In district A it is not infrequent to find four or five such buildings crowded on one small lot, until it is practically covered. The result is that we have on these



No. 6—A typical insanitary, unattractive, overcrowded tenement—There should be none of these in the city.

lots some of the worst conceivable housing conditions and it was this extreme and hodge-podge overcrowding of lots with a medley of buildings that won for a portion of this district the

distinctive title of "the worst square mile of housing in any civilized community." The fact that most of these buildings are frame makes the condition more serious, because to the dangers



No. 7—One of the worst tenements in the United States—It has 69 dark rooms and 30 unventilated water-closet compartments.

of overcrowding is added that of increased fire hazard. Not all of the lot overcrowding in the city is confined to district A. Other congested areas are developing about industrial centers in the



outlying districts. In district B there are two excellent examples of this development. Several old frame houses have been moved to the rear of the lots, and large tenements, with stores and saloons on the first floor, have been built on the front of the lots. Each one of these places is owned by "the boss" of the neighborhood and is an embryo slum. If not checked by law, the conditions of district A will be reproduced here.

The tendency to build solid block tenements over almost the entire lot is not so great as is the tendency to crowd many buildings on the lot, but as the land becomes more valuable in the crowded district, it is an ever-increasing tendency. One of the worst examples of this tendency is a six-story brick building which covers the entire lot and has 69 dark rooms. Another four-story brick tenement in this district is located on the center of the lot and is entirely surrounded by frame houses, the only entrance to the tenement being through the alley or yard of one of these houses.

When we consider that Cleveland is limited only by the lake on the north, there seems to be no reason why it should ever permit lot overcrowding, or why it should have developed such congestion as it has in district A, where 4% of its population lives on .004% of its area. The tendency of industry to move from the congested centers of the city to outlying districts (a tendency made possible by the completion of the Belt Line), is one of the best preventives of congestion. The solution of the transportation problem is the next preventive move and until adequate transportation is provided to all parts of the city, the overcrowding near industrial centers will increase rather than diminish. Most important of all is the control of land values to prohibit exploitation and thereby excessive prices, and the adjustment of taxes to prevent large areas of available land from lying idle.

### Buildings

Out of the total number of buildings, 3,393 or 91% are frame, and 323, or 9%, are brick. Thus we see that Cleveland shows as marked a tendency toward frame structures as Philadelphia and Baltimore do toward brick. These frame buildings greatly increase the fire hazard, and more readily present an appearance of dilapidation and neglect than do brick buildings. It is doubtful if these frame structures are cheaper and generally they are

not of equal durability. Practically no brick is used for dwellings. Almost all of the brick buildings are in district A and are all tenements and are generally in connection with business blocks. This is accounted for by the fact that part of district A is within the fire limits, and within those limits no more frame buildings can be erected.

### **Height of Buildings**

1,669 buildings are 1-story  
1,922 buildings are 2-story  
103 buildings are 3-story  
19 buildings are 4-story  
3 buildings are over 4-stories

The majority or 1,922 are two stories. However, in district A there are 91 3-story buildings, 19 4-story buildings, and 3 that are over 4 stories. This emphasizes the fact that in this district, at least, Cleveland is developing the problem of the high tenement. Not one of these buildings has elevator service, and none is fireproof.

### **Repair of Buildings**

Of 3,716 buildings investigated, 2,498, or 67%, are in good repair, that is the roofs, walls and foundations are sound, the flooring and plastering in good condition and the plumbing in good working order. Most of those in good repair are one and two-family houses, and many of them are owned by the occupants. 787, or 21%, are in a fair state of repair. 431, or 12%, are in a poor state of repair. This makes a total of 1,218, or 33%, that are in a bad or only fair state of repair. In these cases, the exteriors are dilapidated, or the roofs are leaking, the flooring or the plastering broken, the walls covered with filthy and torn paper, or the plumbing defective or insufficient. In many cases all of these defects are present. In district A, 1,012, or 58%, of the buildings are in a poor or only fair state of repair; in district B, 198, or 10%, are in a poor or only fair state of repair, and in district C, 8, or 5%, are in a poor or only fair state of repair. Such conditions are due largely to neglect and indifference on the part of the property owners, who are trying to get the most out of the old, makeshift buildings that have long ago served their purpose as places of human habitation, while holding the land at an increased value for business purposes. Many buildings in district A, as well as some in district B, are owned by foreign land-



lords whose low standards of living and ignorance of sanitary laws and property responsibility, baffle every effort for improvement. "The tenants don't want anything better," and "They wouldn't know how to use it," are their replies to all orders or suggestions from the sanitary officers.

### Cleanliness of Buildings

The cleanliness of buildings is as follows:

2,645—Good  
749—Fair  
322—Filthy

This makes a total of 1,071, or 29% of the buildings that are in a poor or only fair state of cleanliness. In district A, 938, or 54%, are in a poor or only fair state of cleanliness. In district B, 128, or 7%, are in a poor or only fair state of cleanliness, and in district C, 5, or 3%, are in a poor or only fair state of cleanliness.

In almost every case where the repair of buildings is good, the cleanliness of public parts of the building is good, and where the repair is bad the cleanliness is bad. However, the cleanliness of apartments is higher than the cleanliness of public parts of buildings, and in not a single case has a filthy apartment been found in the building whose public parts are in a good state of repair and cleanliness. The obvious inference is that the standard of living of the tenant is largely determined by the standard set by the property owner in the way he maintains his building. However, it is only fair to concede that there are many exceptions to this statement, especially when the tenants are recently arrived immigrants, whose ignorance of the first principles of sanitation and whose careless personal habits create more problems than the best intentioned landlord or most active sanitary officer can solve. Such problems are solved only by the slow and painstaking process of educating these people to the standard of sanitation the community demands and giving them the opportunity to maintain it. Most property owners are too impatient with such tenants to assume this task and the less than two dozen sanitary officers that the city employs obviously can do little, when we consider that 15,000 immigrants come to Cleveland every year.

The nationality of the housekeeper has nothing to do with the cleanliness of the apartment. We hear much of German cleanliness but one of the dirtiest apartments found was that of a German, and another that of an American family. Some Negroes,

some Slavs and some Italian households were remarkably clean, while others of the same nationality lived in extreme filth.

In no tenement is there janitor service. As a matter of fact, the suggestion that tenement house owners provide janitors has been met with derision. Janitors are required by law in all New York and Chicago tenements. That they are needed in Cleveland is not alone evinced by the neglect of buildings in the matter of cleanliness and repair, but by the neglect and misuse of yards.

### Cleanliness of Yards

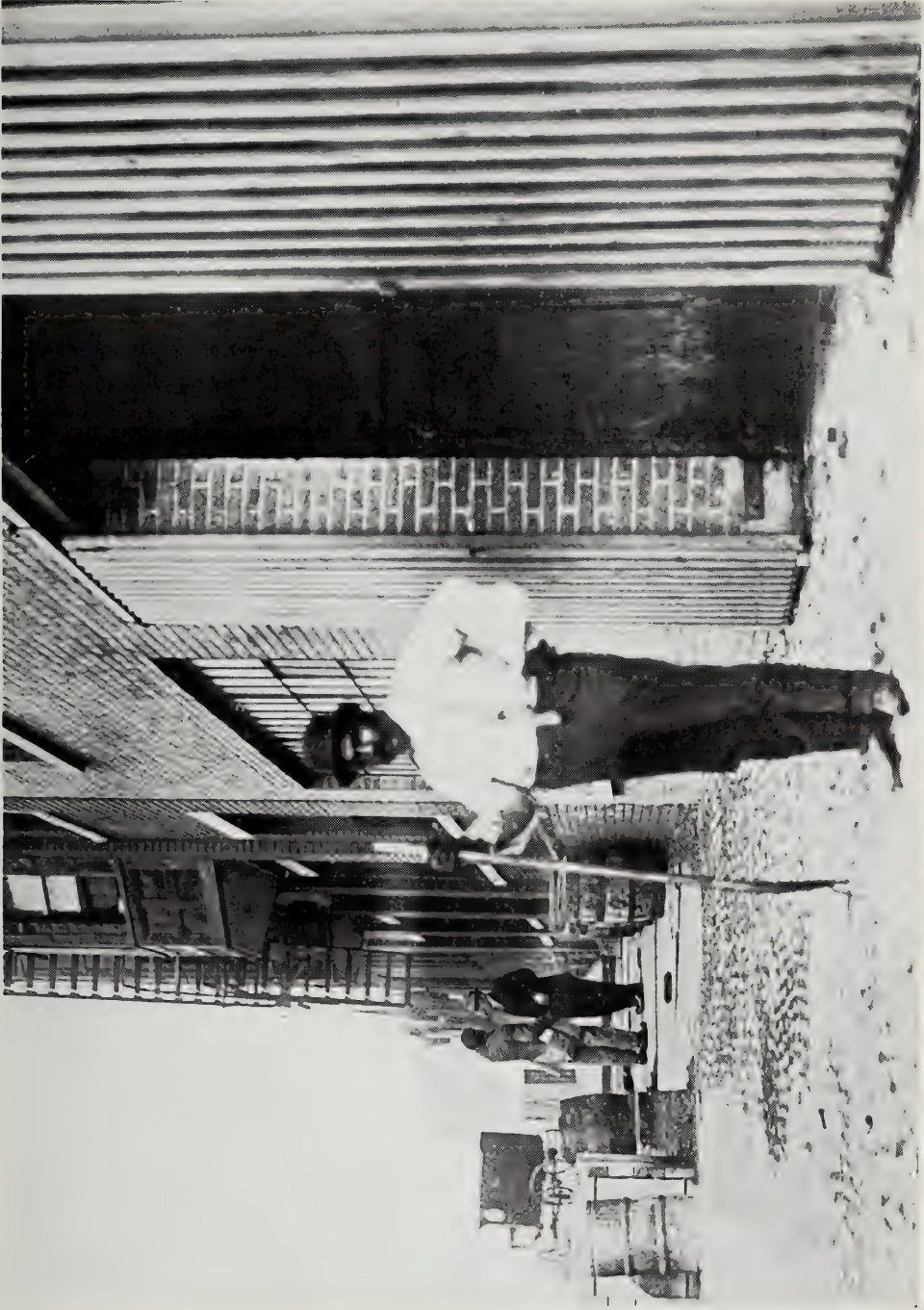
2,794 yards were clean; 562 yards were fairly clean and 202 yards were filthy. In every case where the yard was filthy, it was in connection with a tenement and there were no garbage and rubbish receptacles provided. In some cases where the yards were fairly clean, there were garbage and rubbish receptacles that were not used, and these too were in connection with tenements. It is a frequent cry of owners that tenants will not use the receptacles provided for them, but in no case had the owner made one person, such as a janitor—responsible for the cleanliness of the yard and the use of the garbage can.

Out of the total number of yards that were in a poor or only fair state of cleanliness, 584, or 76%, are in district A and 584, or 32%, of the yards in this district were filthy or only fairly clean. There are two causes for this: First, garbage collection in this district is not frequent enough at certain times of the year, and second, the district is so overcrowded, so many people share small yards in common that they can never be kept clean if the property owners do not assume the responsibility, for no tenant is going to run the risk of clearing away filth that another tenant has caused. Such responsibility is not light, for it is next to impossible to keep these overcrowded and overused yards clean, yet it is light when considered as the price that the property owner should pay for overcrowding his lots.

141 yards are overcrowded with outhouses and barns and in 210 cases barns are less than 25 feet from houses. These outhouses and barns constitute as serious a menace to health as do the yards strewn with garbage and piled high with rubbish. The filthy barns that are allowed to stand in this crowded section are a disgrace to the city. The human misery that is caused by the nauseating odors, the flies, the filth, and their unsightliness is the tribute that the dwellers in this district pay to the doctrine



of vested rights, for our courts have ruled that if these barns were built before the houses, they have prior right. Why any barn that is not of fireproof construction, that is without a cement or



No. 8—A livery stable on one side and a candy factory on the other of this tenement, where twelve Italian families live.

other watertight flooring with sewer connection, and without a vermin tight and odor tight manure pit inside, should be allowed to stand within less than 25 feet of a house, when it is recognized that all new barns must be so built and cannot stand less than 25

feet from a house, is difficult to understand from the side of reason but is quite simple from the side of vested rights.

### Light and Ventilation

Out of the total number of rooms inspected there are 400 dark rooms, that is, rooms that have no windows leading directly to the outer air; and 328 rooms that are poorly lighted and ventilated, that is, that have doors or windows that open only to narrow courts or areaways. 396 of the 400 dark rooms, and 317 of the 328 poorly ventilated rooms, or 98% of the total number of rooms that are insufficiently lighted and ventilated, are in district A. The others are in district B. There are no dark or poorly ventilated rooms in district C.

Most of the dark rooms are caused by building over the entire lot, as shown by the examples above referred to in district A. However, many dark rooms are made by sub-dividing large rooms. This has been done frequently when an old, single-family house has been altered by makeshift means into a 3 or 4 family tenement. The creation of dark rooms is now prohibited by law, but there is as yet no law that makes it mandatory to open up existing dark rooms by removing partitions that separate them from rooms that have access to outer air.

Insufficiently lighted and ventilated rooms are made by overcrowding the lot with too many buildings, thus creating narrow courts and areaways. The fact that no building with windows on the side can now be built within less than 3 feet from the lot line, and that no building can be placed upon the same lot within 10 feet from another building, will remove the possibility of creating more of these narrow courts and areaways in the future; but there is at present no retroactive law that demands that rooms that are now insufficiently lighted and ventilated be vacated for human habitation. The air shafts that in New York and Chicago cause so many rooms to be insufficiently lighted and ventilated, are practically unknown in Cleveland, a fact for which we cannot be too grateful, for they invariably prove to be foul air shafts.

### Water Supply

Every premises investigated has a city water supply and not one cistern or well was found in these districts. 1,870, or 55% of the families in district A; 2,071, or 91% of the families in



district B; 186, or 96% of the families in district C, making a total of 4,127, or 70% of the families, have an individual water supply inside the apartment. This means that 30% of the families have an inadequate water supply, for it is not too much



No. 9—Recently arrived immigrants who have taken up their abode in a dark, crowded tenement, because they have been directed there by "the boss."

to expect every family to have at least one individual water supply.

157, or 5% of the families in district A; 8, or .004% of

the families in district B, and 2, or 1% of the families in district C, making a total of 167, or 3% of the entire number of families, use a water supply in public parts of the building in common with other families. This is a small per cent, but when we see the prevailing uncleanness of sinks in halls and basements that are used by several families, no one of which assumes any responsibility for their uncleanness, we wish that the number were nil.

172, or 5% of the families in district A; 184, or 8% of the families in district B, and 5, or 3% of the families in district C, making a total of 358, or 6% of the families, are dependent upon individual water supply in the yard. 900, or 26% of the families in district A; 21, or 1% of the families in district B, none of the families in district C, making a total of 921, or 16% of the total number of families, share water supply in the yard with other families. This makes a total of 1,282, or 22%, that are dependent upon yard hydrants. When we consider not only the inconvenience of the yard hydrant, but the fact that it is always frozen for certain periods of the winter, it seems that every house should long ago have been supplied with an inside water supply. As yet there is no city ordinance that requires more than one yard hydrant for old buildings, no matter how many families are living there. In 4 cases, more than 5 families are dependent upon one yard hydrant.

### Water Closets

Cleveland has some of the worst conditions of water closets of any city of its size in the country, and it is doing little to remedy these conditions. Laws should be passed to make such conditions prohibitive. 995, or 29% of the families in district A; 1,095, or 48% of the families in district B; 114, or 54% of the families in district C, making a total of 2,204, or 38%, have individual water closets inside the apartment or house. This means that 62% of the families have insufficient and insanitary water closets.

277, or 8% of the families in district A; 71, or 3% of the families in district B; 13, or 7% of the families in district C, making a total of 361, or 6%, share water closets in public parts of the building with other families. The horrors of the hall or basement closets shared by several families, none of which assumes any responsibility for its cleanliness, present an unthinkable condition that should be allowed to exist in no city where people are expected to be respectable.



117, or 3% of the families in district A; 637, or 28% of the families in district B; 26, or 14% of the families in district C, making a total of 780, or 13%, have individual toilets in the yard.

2,008, or 59% of the families in district A; 481, or 21% of the families in district B, and 13, or 7% of the families in district C, making a total of 2,502, or 42%, share yard closets in common with other families. This means that 3,372, or 57% of the families are dependent upon yard fixtures, and this in a city with a population of 600,000 people.

1,035, or 30% of the families in district A; 1,113, or 49% of the families in district B; 128, or 66% of the families in district C, making a total of 2,276, or 39% of the families, use sanitary water closets.

916, or 27% of the families in district A; 593, or 27% of the families in district B, and 30, or 16% of the families in district C, making a total of 1,539, or 26%, use hopper closets. This prevailing type of fixture is undesirable because of the dry surface, easily soiled and not frequently flushed. In many cases the iron portions of these water closets are corroded and have not been painted or enameled since their installation years ago. They are generally inclosed in wood which is often saturated and decayed, and they are frequently located in dilapidated, filthy compartments. In spite of the objectionable features, Cleveland continues to allow this type of fixture to be installed in yards. It does not allow their installation inside the houses, but it has no retroactive law that requires the removal of those that are already in houses. 86 of these insanitary fixtures were found inside of houses in this investigation.

530, or 16% of the families in district A; 247, or 11% of the families in district B; 2, or 1% of the families in district C, making a total of 779, or 13%, use sewer vaults or school sinks. New York has not one of these sewer vaults left, and many cities smaller and less congested than Cleveland are ordering them out, but the courts here have refused to recognize that the Division of Health has been justified in declaring this type of water closet a nuisance, and have ruled that because they are connected to the sewer, they are sanitary. However, the records of the Division of Health show that these sewer vaults are so frequently stopped up so that the contents are not carried away through the sewer, that they are little, if any, better than privy vaults.

697 orders were served during the year 1913 to "open stopped sewer at sewer vault closet and to have same cleaned out."

277 privy vaults remain in these districts in spite of the fact that practically all of the streets are sewerred and that most of them have been sewerred for years. These vaults are scattered throughout the three districts and orders from the Division of Health to remove them are pending. Some of these orders have pended for a year, because the property owners have succeeded in getting the courts to extend their time for compliance with orders. It is believed that the spring of 1914 will see all of them removed from sewerred streets.

### Occupancy of Buildings

The following table gives the number of families per building:

Number of families living in 1-family houses .....	2,512
Number of families living in 2-family houses .....	1,496
Number of families living in 3-family houses .....	591
Number of families living in 4-family houses .....	668
Number of families living in 5-family houses .....	310
Number of families living in over 5-family houses .....	307

In 169 cases, there are saloons in the same building with apartments. In 930 cases there are stores or other places of business in the same building with apartments. Out of the total number of apartments where saloons, stores or other places of business are in the same buildings with apartments, 1,098, or 85% are in district A.

456, or 12% of the buildings are tenements, and 3,260, or 88%, are dwellings or double houses.

1,877, or 32% of the families live in tenements. In district A, 1,628, or 48%; in district B, 235, or 10%, and in district C, 14, or 7% of the families live in tenements. The U. S. Census report for 1910 showed that 13% of Cleveland's population lived in tenements. Judging by these figures and by the proportion of tenements to dwellings that have been built in the last three years, it is evident that the percentage of tenement dwellers is increasing every year.

There are living in the 3,716 buildings covered in this investigation, 21,119 adults and 17,291 minors, making a total of 38,410 persons, and averaging 10 persons per building. The



average by district is 12 persons per building for district A, 9 persons for district B, and 6 persons for district C.

The total number of families in these buildings is 5,874, making an average of 6.5 persons per family. The average by

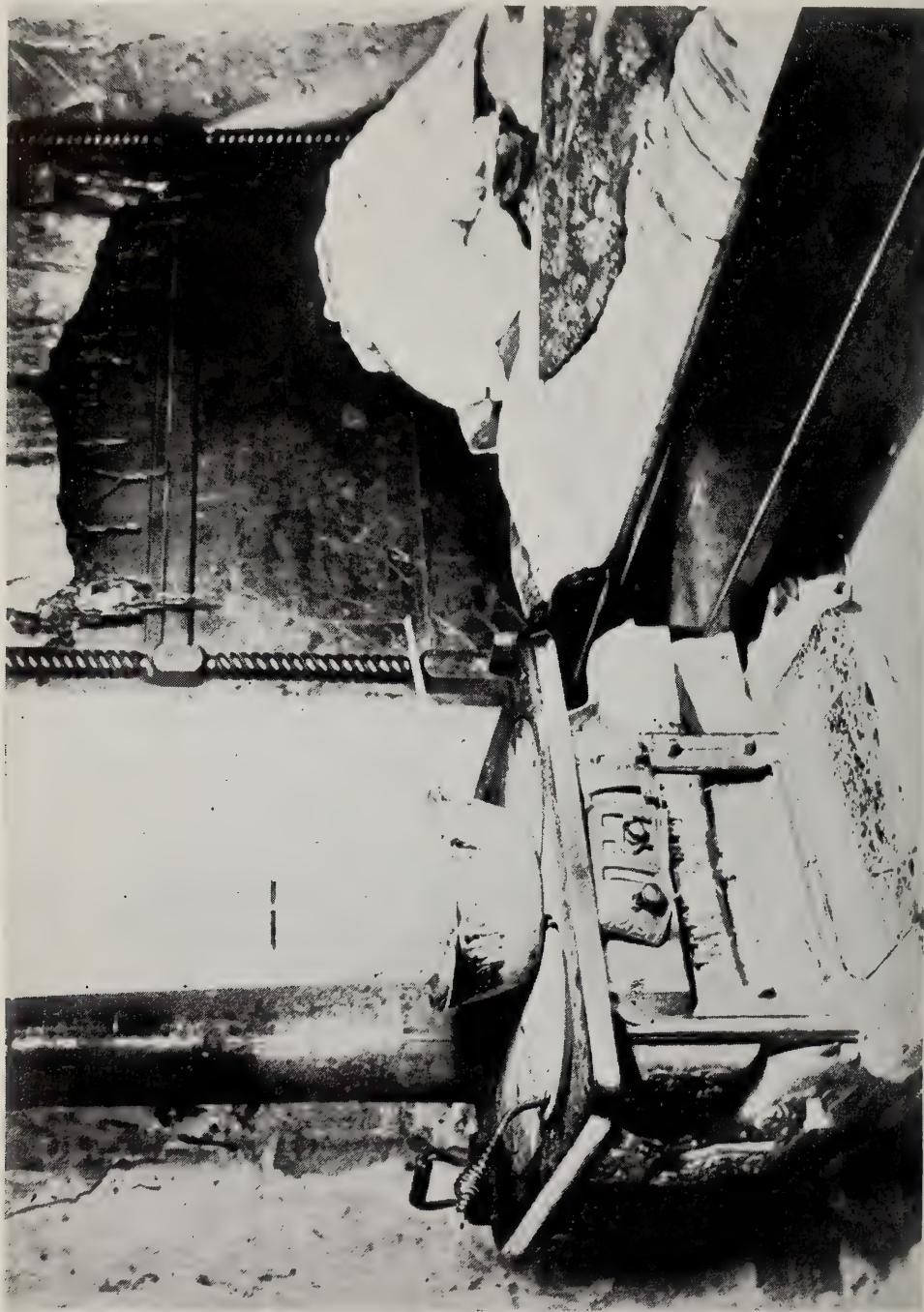


No. 10—Room overcrowding—Man, woman and two children cook, eat and sleep in this room.

district is 6.3 persons for district A, 7 persons for district B, and 4.7 persons for district C. The number for districts A and B are above the average because of the presence of boarders in

so many families. The average number of persons per room is 2 for district A, 1 for district B and .8 for district C.

The above figures show excessive room overcrowding only in district A, that is, in the district where there is the greatest



No. 11—Living!—in one dark room.

amount of lot overcrowding, where there are the most dark rooms, where sanitation is poorest, and where there are the greatest number of tenements. In practically every instance of



overcrowding of rooms, the rooms are in tenements and not in dwellings. This extreme overcrowding in district A, both lot overcrowding and room overcrowding, is what we must expect when we realize that 4% of the entire city's population is housed here on .004% of its area.

However, not all of the room overcrowding in the city is confined to district A. District B and many similar districts in the city have the problem of the foreign boarding house, which is even more difficult to solve than the problem of the large family crowded into too few rooms. In one part of district B that is near a great industrial plant which employs a large number of recently arrived immigrants, the majority of whom have left their families at home, there are several of these boarding houses that are typical of hundreds near the steel plants and ore docks. In these houses the beds and bunks are crowded in as closely as they can be, and such necessities as clothing and food supplies are stored under the beds and in dark closets. The men sleep in these places by shifts, one by day and one by night. Needless to say that much tuberculosis and contagious disease, not to mention immorality, emanates from these houses. The increasing number of these places emphasizes not only the necessity of more rigid inspection in these districts to enforce sanitary regulations, but the necessity of inquiring into the economic side of industry to see if these men are paid a wage that permits them to live decently, and the necessity of stimulating building in these districts so that there will be more safe and sanitary houses to meet the demand. The industries themselves, if for no other reason than an interest in the efficiency of their workers, might take an interest in providing near their plants better habitations than most of their employes find for themselves, because they are all too frequently the victims of real estate exploitation on the one hand and victims of an insufficient supply of houses that are accessible to their places of work on the other hand.

### Rents

1,371, or 37% of the buildings are occupied by their owners. 818, or 22% of the buildings are occupied in part by owners and in part by tenants; 426, or 25% of the buildings in district A, 1,635, or 89% of the buildings in district B, and 128, or 82% of the buildings in district C, are occupied in whole or in part by their owners.

The majority of the buildings that are occupied by owners are single dwellings and the majority that are occupied in part by owners are double houses, but the tendency of the foreigner to acquire property is introducing the tenement with the landlord living in a part of it.

The prevailing type of house that is occupied by its owner is the four or five-room frame cottage valued at \$2,000.00 to \$3,000.00. The prevailing type of house that is occupied in part by the owner is a double house valued at \$4,500.00 to \$6,000.00. Figuring rents from valuation, all houses have been included in this rent tabulation. There is a wide range of rents, varying from \$3.00 for a one-room apartment to \$25.00 for a seven-room apartment.

The prevailing rent is from \$8.00 to \$10.00 per month, and this purchases a three or four-room apartment in a tenement, or a frame cottage. The apartment in a tenement that rents for \$8.00 to \$10.00 per month is generally equipped with a city water supply and a sink—often an old iron sink with defective plumbing, and a water closet that is shared in common with other families. No janitor service, light, heat or bath is provided in apartments that rent for this price. The house that rents for \$8.00 to \$10.00 per month is generally an old one-story frame house of four to five rooms, in a poor state of repair and without plumbing, the occupants having to use a hydrant in the yard and a sewer vault closet, generally sharing these with other families. However, the house that is owned or is being purchased, and whose valuation causes it to be classed as an \$8.00 to \$10.00 per month house, is in a much better state of repair and has much better sanitary provisions than has the house or the apartment that actually rents for that price. There is a sufficient supply of such houses and apartments, but as above stated, most of them have so little to offer in the possibilities of comfortable homemaking that they are expensive at any price.

<i>District A.</i>	Rent for 1 room per month.....	\$ 3.50
	Rent for 2 rooms per month.....	5.00
	Rent for 3 rooms per month.....	6.75
	Rent for 4 rooms per month.....	9.00
	Rent for 5 rooms per month.....	12.00
	Rent for over 5 rooms per month....	12.50



<i>District B.</i>	Rent for 1 room per month.....	\$ 3.40
	Rent for 2 rooms per month.....	4.60
	Rent for 3 rooms per month.....	6.50
	Rent for 4 rooms per month.....	8.85
	Rent for 5 rooms per month.....	11.50
	Rent for over 5 rooms per month....	16.00
<i>District C.</i>	Rent for 2 rooms per month.....	\$ 5.00
	Rent for 3 rooms per month.....	8.00
	Rent for 4 rooms per month.....	10.00
	Rent for 5 rooms per month.....	12.00
	Rent for over 5 rooms per month....	16.00

It is evident from the above table that rents are higher in district A than in district B, notwithstanding the fact that apartments in this district are in tenements, that these tenements are maintained in a poor state of cleanliness and repair, that they have many dark and poorly ventilated rooms, and that the plumbing facilities are insufficient. The apartments in district B that rent for less, are in single or double houses, are maintained in a cleanly condition, and that the rooms are well-lighted and ventilated. Rents are higher in district C, but the apartments in this district are in single dwellings and are maintained in a cleanly condition and are supplied with sanitary toilets and baths inside the apartment.

The majority of the people in these districts can afford to pay from \$10.00 to \$16.00 per month for rent, but there seems to be little opportunity to get either houses or apartments at these medium prices. In other words, there are plenty of cheap, unsanitary houses and plenty of attractive and more expensive houses and apartments, but few of the intermediate grade. It is evident that Cleveland needs more houses and apartments that rent from \$10.00 to \$16.00 per month and provide sanitary facilities and that degree of comfort and attractiveness that is necessary for decent homemaking. It is to be hoped that some companies will build the type of houses that will meet this demand. The Sanitary Home Association of Washington, the Schmidlapp houses of Cincinnati, the Octavia Hill Association of Philadelphia, have all demonstrated that good, sanitary, even attractive houses, can rent for \$12.00 to \$16.00 per month, and yet yield from 5% to 6% on the investment.

### Morbidity Records

Nothing is more difficult than to attempt to tabulate in actual figures the amount of disease and ill-health, with their resultant evils of misery and poverty, that bad housing conditions produce.



No. 12—The single, sanitary dwelling.

These are the records that are tabulated on the minds and bodies of the victims of such conditions and indirectly, but none the less surely, on the minds and bodies of thousands of others with whom they come in contact.



The contagious disease record for district A was 32 per thousand in 1912, and 25 per thousand in 1913; for district B it was 56 per thousand in 1912, and 22 per thousand in 1913; for district C it was 28 per thousand in 1912, and 21 per thousand in



No. 13—What chance of happiness or usefulness has this child on the threshold of life and of such a home.

1913. An epidemic of diphtheria and another of measles in district B brought the contagious disease record up unusually high in 1912.

The majority of cases of pneumonia, infantile paralysis and ophthalmia came from district A in both years.

The records of the Bureau of Tuberculosis, which date from 1907, when this bureau was established, show that up to 1914 there have been reported 8,751 cases of tuberculosis, and that 1,087 are in district A, 493 in district B, and 5 are in district C. The rate of tuberculosis for district A was 35 per thousand for 1912, and 24 per thousand for 1913; for district B, it was 23 per thousand for 1912, and 19 per thousand for 1913; and for district C, it was 5 per thousand for 1912, and 6 per thousand for 1913.

### Social Statistics

Moral contagion is more virulent than physical contagion. As a result, we find even a greater proportion of crime, delinquency and dependency coming from district A as compared with other districts, than of contagious disease or tuberculosis. Pin maps that show where the delinquent children that pass through the Juvenile Court come from are blackest in district A. The Associated Charities' records show that they have more cases of poverty and dependency in district A than in any other district of equal size. 10% of the cases treated by them in December of 1913 were from this district, which includes only 4% of the city's population. When we consider the living conditions of this district, we will not wonder that heads of families, through inertia and consequently through inefficiency, fail to support families and frequently desert them; that mothers go insane, or become sodden and indifferent to the welfare of the home, and that the children of such parents either fill our institutions or grow up to be defective and dangerous members of society. We must accept as a matter of course that the child who is reared in these unhealthful and unwholesome, overcrowded and unattractive homes, where there is no opportunity for normal living and natural development, will be either morally or physically defective, or both.

Every citizen of Cleveland who has read this report so far cannot fail to feel a civic pride in the fact that there are so many opportunities for and examples of wholesome homemaking in this city, but on the other hand he cannot fail to ask himself why such conditions of housing and sanitation as those that exist in district A and those that are developing year by year in other districts, should be permitted or tolerated in this city. No taxpayer can fail to ask why he must continue to contribute to the



support of institutions that care for the social wastage that these slum districts produce when so little is being done to check the growth of slums. No property owner can fail to ask why he should be forced into rent competition with property owners who



No. 14—Pin map—Showing infant mortality for 1913.

have more regard for their rent returns than they have for human life. No parent can fail to ask why his children should be subjected to the moral and physical contamination that spreads in all directions from these areas. No believer in an equal oppor-

tunity for all can fail to ask why little children should be born into an environment so unwholesome and so unattractive that their bodies, minds and souls are blasted before they have come to manhood or womanhood. No individual who believes in the brotherhood of man can fail to ask what he can do to help his brother to have a clean, safe and attractive home, in which to rear his family.

Cleveland needs, first of all, legislation that will prohibit the erection and the maintenance of buildings that have not the possibilities of decent living within them. It then needs a department efficiently and sufficiently equipped to enforce such legislation. Before it can get the necessary legislation or the appropriation necessary to enforce it, it must have an intelligent and organized public sentiment that will demand these things. When such a public sentiment is aroused, we will not only have these palliative remedies that come through legislation, but we will have such constructive agencies at work as the city-planning commission, that will interest itself in the development of the homes of the people as well as in the development of civic centers and business centers, and we will have a civic consciousness that will not tolerate either the system or the individual that exploits the home for gain, or pays a wage so low that the home cannot be maintained.

**Table Giving Statistics By Districts**

<b>Investigation Covers</b>			
	Dist. A.	Dist. B.	Dist. C.
Acres .....	103	348	50
Buildings .....	1,732	1,828	156
Average number of buildings per acre.....	16	5	3
Persons .....	21,480	16,012	918
Average number of persons per acre.....	208	46	18
<b>Lot Overcrowding</b>			
	Dist. A.	Dist. B.	Dist. C.
No. of houses on front of lot.....	1,408	1,719	154
No. of houses on center of lot.....	52	1	0
No. of houses on rear of lot.....	272	108	2
Percentage of buildings on front and rear of lot .....	19%	6%	1%
No. of yards excessively overcrowded with barns and sheds .....	136	5	0
<b>Buildings</b>			
	Dist. A.	Dist. B.	Dist. C.
No. of frame .....	1,473	1,767	153
No. of brick .....	259	61	3



**Height of Buildings**

	Dist. A.	Dist. B.	Dist. C.
No. of 1-story buildings.....	510	1,149	10
No. of 2-story buildings.....	1,109	667	146
No. of 3-story buildings.....	91	12	0
No. of 4-story buildings.....	19	0	0
No. of more than 4-story buildings.....	3	0	0

**Repair of Buildings**

	Dist. A.	Dist. B.	Dist. C.
No. in good state of repair.....	720	1,630	148
No. in fair state of repair.....	659	120	8
No. in poor state of repair.....	353	78	0
Per cent in fair or poor state of repair...	33%	10%	5%

**Cleanliness of Buildings**

	Dist. A.	Dist. B.	Dist. C.
No. in good state of cleanliness.....	794	1,700	151
No. in fair state of cleanliness.....	625	119	5
No. in poor state of cleanliness.....	313	9	0
Per cent in fair or poor state of cleanliness	54%	7%	3%

**Cleanliness of Yards**

	Dist. A.	Dist. B.	Dist. C.
No. in good state of cleanliness.....	960	1,551	183
No. in fair state of cleanliness.....	391	161	10
No. in poor state of cleanliness.....	193	9	0

**Light and Ventilation**

	Dist. A.	Dist. B.	Dist. C.
No. of dark rooms.....	396	4	0
No. of poorly ventilated rooms.....	317	11	0

**Water Supply**

	Dist. A.	Dist. B.	Dist. C.
No. of families that have individual water supply inside their apartments.....	1,870	2,071	186
Per cent of families that have individual water supply inside their apartments....	55%	91%	96%
No. of families that share water supply inside the building with other families	157	8	2
Per cent of families that share water supply inside the building with other families .....	5%	.004%	1%
No. of families that have individual water supply in the yard.....	172	184	5
Per cent of families that have individual water supply in the yard.....	5%	8%	3%
No. of families that share water supply in the yard with other families.....	900	21	0
Per cent of families that share water supply in the yard with other families.....	26%	1%	0

**Water Closets**

	Dist. A.	Dist. B.	Dist. C.
No. of families that have water closets inside their apartments .....	995	1,095	114
Per cent of families that have water closets inside their apartments .....	29%	48%	54%
No. of families that share water closets inside house with other families.....	277	71	13
Per cent of families that share water closets inside house with other families	8%	3%	7%

## Water Closets -- Continued

No. of families that have individual water closets in the yard.....	117	637	26
Per cent of families that have individual water closets in yard.....	3%	28%	14%
No. of families that share water closets in yard with other families.....	2,008	481	13
Per cent of families that share water closets in yard with other families.....	59%	21%	7%
No. of sanitary water closets.....	1,035	1,113	128
Per cent of water closets that are sanitary	30%	49%	66%
No. of hopper closets .....	916	593	30
Per cent of water closets that are hoppers	27%	27%	16%
No. of sewer vaults or sewer crock closets	530	247	2
Per cent of water closets that are sewer vaults or sewer crocks .....	16%	11%	1%
No. of privy vaults.....	67	201	9
Per cent of water closets that are privy vaults .....	2%	9%	5%

## Occupancy of Buildings

	Dist. A.	Dist. B.	Dist. C.
No. of families living in 1-family houses....	913	1,473	126
No. of families living in 2-family houses....	856	586	54
No. of families living in 3-family houses....	444	138	9
No. of families living in 4-family houses....	600	64	4
No. of families living in 5-family houses....	300	10	0
No. of families living in over 5-family houses .....	284	23	0
No. of tenements that have stores and saloons in same building .....	834	258	7
Per cent of buildings that are tenements....	78%	2%	2%
Per cent of families that live in tenements..	48%	10%	7%
No. of adults .....	11,532	9,031	556
No. of minors .....	9,948	6,981	362
No. of families .....	3,397	2,284	193
Average No. of persons per building.....	12	9	6
Average No. of persons per family.....	6.3	7	4.7
Average No. of persons per room.....	2	1	.8

## Rents

	Dist. A.	Dist. B.	Dist. C.
No. of buildings that are occupied by owner .....	122	1,129	120
No. of buildings that are occupied in part by owner .....	304	506	8
Per cent of buildings that are occupied in whole or in part by owner.....	25%	89%	82%
Rent for 1 room per month.....	\$ 3.50	\$ 3.40	.....
Rent for 2 rooms per month.....	5.00	4.60	\$ 5.00
Rent for 3 rooms per month.....	6.75	6.50	8.00
Rent for 4 rooms per month.....	9.00	8.85	10.00
Rent for 5 rooms per month.....	12.00	11.50	12.00
Rent for over 5 rooms per month.....	12.50	16.00	16.00
Average rent per month.....	8.13	8.48	10.20

## Morbidity Record

	Dist. A.	Dist. B.	Dist. C.
Contagious disease, rate per 1,000 for 1912..	32	56	28
Contagious disease, rate per 1,000 for 1913..	25	22	21
Tuberculosis, rate per 1,000 for 1912.....	35	23	5
Tuberculosis, rate per 1,000 for 1913.....	24	19	6



## OUR PRIMATE ANCESTORS\*

By T. WINGATE TODD, F.R.C.S., The Anatomical Department,  
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It would seem probable from zoological affinities that all our primate stock descended from some animal not unlike the modern tree-shrew (*Tupaia*) in its appearance. The hypothetical outline of this descent has recently been defined in a comprehensive address to the British Association by Professor G. Elliot Smith, whose researches on the brain have gone so far to elucidate the steps by which an animal such as man could be produced. True the author can give us no reason why modification of habits should take place, each of which has been associated with changes in the type of brain and morphological relation of its parts. At our present stage of knowledge, it is remarkable that he should be able to present so much; it would be unfair to ask impossibilities and condemn the work because of the missing links in its chain of logical reasoning.

It has already been pointed out that man's ancestral history is bound up with that of the Old World apes, and that while there is the possibility of the New World monkeys having been derived from a different ancestral stock, yet it is probable that their ancestors diverged from the common line at an early date. However this may be, it is certain that man evolved his being in the Old World and not in the New; that he appeared in America by migration. It is a curious fact that many of our foremost geologists and anthropologists have a firm belief in one single line of descent for man. Apparently they cannot realize that just as there are several types of anthropoid apes and have been others which are now extinct, so possibly there are or have been various kinds of man, not all of which have proved efficient in the survival of the fittest; in the weeding out which necessarily accompanies evolution. It is lamentable that such an attitude should be so common, yet, recollecting the vast strides made in our knowledge in the past ten years, it is not surprising that minds, less elastic now that they are no longer young, should hesitate to grasp this latest theory. For, resting on observed facts, it becomes more than a hypothesis, that of several different types of man evolved in the past, in all probability only one has survived. It must not

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\*Containing the Substance of the Museum Demonstrations on Human Palaeontology delivered on Feb. 19th and 24th, 1914.

\*The first lecture of the series appeared in *The Cleveland Medical Journal*, March, 1914.

be expected that in these demonstrations the whole genealogical descent can yet be accurately traced, or that we can hope to realize precisely what like was the ancestor of *Homo sapiens* at different stages of his evolution. We have, as it were, only the twigs at the end of the branches, some living and many dead, it is true, of the genealogical tree within our vision. Some of these twigs are set on branches nearer the ground than others. Some are on shorter and some on longer branches. Hence some are nearer the parent stem and some are more remote. But from each we can gain some knowledge and the study of all enables us to estimate with a fair degree of probable accuracy those portions of the tree which as yet we do not know.

It is necessary at the very beginning to emphasize the possibility of more than one type of man being unearthed among the various palaeontological remains. For like the fact that Marley was dead "this must be distinctly understood, or nothing wonderful can come of the story I am going to relate."

The hunting of the common ancestor of man and of the apes has long been a fascinating occupation. We can see from previous demonstrations that his teeth must have numbered 32, that his premolars must have been two and not three in number, that the cusps of his molars must have been nipple-shaped and that his canines must, to a certain extent, have been reduced. His size need not have been great. In fact it is certain he was small. All

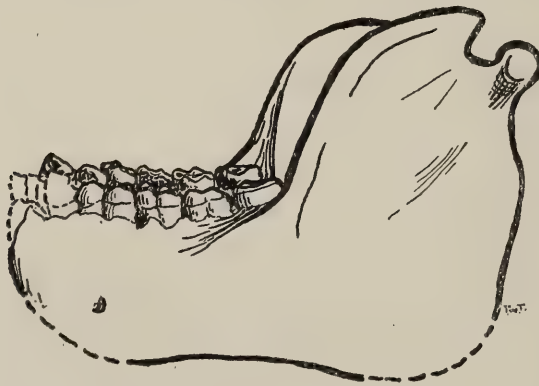


Fig. I. Left Aspect of the Mandible of *Propithecus*. Natural Size.

Note the powerful ramus, the slope of the mandible at the symphysis, the vertical position of the incisors, the reduced canine, the short perpendicular premolars and the anthropoid-like molars. The dotted lines represent the parts of the bone which are missing.

forms commence small and increase in size with evolution. We know the ancestral history of the horse and the elephant more completely than we know the history of any other animal, and while the earliest ancestor of the first named was of the size of a



modern cat, that of the progenitor of the elephants did not exceed in weight an average-sized dog. It is but recently that there have been found in the sands of the Fayoum in Egypt bones of animals corresponding to what must necessarily have been the common ancestor of apes and man.

In one of these, *Propliopithecus* by name, we have the dental characteristics just postulated. Probably we have in this ape a type corresponding to the animal of which we are in search. Two others, *Parapithecus* and *Moeripithecus*, have also been found, the latter known only by two of its molar teeth, in situ in a fragment of the jaw, and casts of the mandibles of all three are in the museum. On examination of the jaw of *Propliopithecus*, the molars are observed to be modelled on the pattern exhibited by those of an anthropoid ape, rather than on that of the molars of an Old World monkey. The incisors and premolars are perpendicular as in man. In any case, a glance at the shape of the teeth of the lemur (Fig. II) shows that this animal

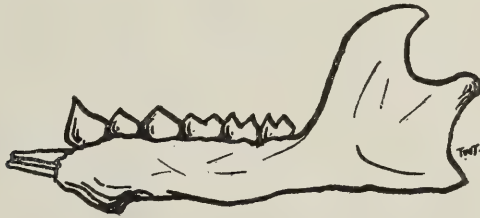


Fig. II. Left Half of the Mandible of the Lemur. Two-thirds Natural Size. Note the procumbent incisors, the incisiform canine, the caniniform first premolar, and the sharp pointed cusps of the molars. Note also the small vertical height of the body of the mandible compared with that of the mandible of *Propliopithecus*.

had already far outdistanced the primitive lemur type. The most noticeable feature about the find is its period. Geologically *Propliopithecus* belongs to the Oligocene, a period of time between the Miocene and the Eocene. The antiquity of this age will be made clear by reference to Table I, which is taken from Professor Buttel-Reepen's book, "Man and his Forerunners."

*Propliopithecus* is very closely related to a Miocene gibbon *Pliopithecus*. It differs from the latter in the smaller size of its body, the weak development of the canines, in the almost perpendicular position of the incisors, the relatively shorter premolars, the shorter symphysis and in the considerable height and slight divergence of the two halves of the mandible. In the smallness of the canines, the shortness of the premolars and of the symphysis, and in the height of the mandible, *Propliopithecus* comes

Table I—The Stages of Prehistoric Culture.

Quaternary Era	Recent Period	<div> <div>About 300 B. C. to 100 A. D.</div> <div>From about 1,000 B. C.</div> <div>From about 2,500 B. C.</div> <div>From about 3,000 B. C.</div> <div>Lasted 15,000 to 25,000 Years</div> </div>	<div>Later Iron Age</div> <div>Early Iron Age</div> <div>Bronze Age</div> <div>Copper Age</div> <div>Neolithic Age (Polished stone implements)</div>
		<div>Pleistocene (Glacial Period)</div> <div>Lasted <math>\frac{1}{2}</math> to <math>1\frac{1}{2}</math> Million Years</div>	<div>Palaeolithic Age (Chipped stone implements)</div>
Tertiary Era	Pliocene	<div>Lasted about two Million Years</div> <div>Prestian</div> <div>Kentian</div>	<div>Icenian Palaeoliths (Rostro-carinate implements)</div>
		<div>Cantalian</div>	<div>Eolithic Age (Very rough stone implements)</div>
	Miocene	<div>Lasted about Three Million Years</div>	
	Oligocene	<div>Length of time very doubtful</div>	<div>Possibly unworked stones were used as implements. (Pre-eoliths?)</div>
	Eocene		
	Palaeocene		

closer to man than any other fossil primate at present known. The almost parallel position of the two halves of the mandible and the structure of the molars are comparable with the condition found in the anthropoids, and strongly suggest that not only *Pliopithecus* and the modern gibbons, but also that the other anthropoid apes and man himself are descended along this line. The small canines and short premolars are not, however, new formations in *Propliopithecus*. They existed in Tertiary times in the *Anaptomorphidae*, which are certainly ancestors of the primates.

One must, therefore, consider that the increase in size of the canines and the greater strength of the lower first premolars, which occur in the anthropoids, are not survivals of immediate ancestral forms, but specializations comparable with the lengthening of the forelimbs and the shortening of the tibiae in these apes. In the *Hominidae*, on the other hand, the canines and



premolars have remained small, the two halves of the mandible have lost their parallel position and become arched toward each other, while in spite of the increase in body size the relative proportions of the long bones of the limbs have not undergone any very considerable changes. In all probability one must consider *Pliopithecus* as the ancestor directly of the gibbons, through forms like *Dryopithecus*, to be mentioned shortly, of the anthropoids, and through the ancestor of *Pithecanthropus* and like forms, of man.

Like the Old World apes and anthropoids, *Propliopithecus* has the same number of teeth as man, arranged in a similar manner. *Parapithecus*, on the other hand, has but one incisor, but



Fig. III. Left Aspect of the Mandible of *Parapithecus*. Natural Size.

Note that there is only one incisor, but that there are three premolars. For reasons stated in the text this may be an ancestor of the Old World apes, but cannot be an ancestor of American monkeys.

has three premolars. This may then be an ancestral form from which man and the apes of the Old World are descended, because the canine may have taken on incisiform characters, the first premolar becoming caniniform. It has already been stated that several apes show very clearly the transition from one type of tooth to another. Inasmuch, however, as *Parapithecus* has but thirty-two teeth, it cannot have been the ancestor of the New World apes, which possess thirty-six teeth. The position of this fossil is, therefore, not so clear as is that of *Propliopithecus* and indeed, as has been shown, the latter form merits the greater attention.

When first the theory of evolution was advanced and the suggestion made that man and the apes are descended from a common ancestor, the immense antiquity of man himself was not realized. That is an entirely modern conception; indeed the antiquity of *Homo sapiens* is probably greater than many of our leading anthropologists are even now prepared to admit. But to this point reference will later be made. It seems improbable that pre-ape-men could have been in existence so early as the Oligocene, although in the absence of definite proof we must

keep an open mind. Certainly *Propithecus* presents the characters which we should expect to find in a more distant common ancestor.

Other ape-forms, now extinct, of which casts are on view in the museum, are *Mesopithecus* and *Dryopithecus*, both from the Miocene.

Of these, *Mesopithecus* was found at Pickermi in Greece. It was apparently an ape intermediate in structure between the guenons and the langurs.

*Dryopithecus* is a more interesting fossil. About four mandibles and a humerus were found in Miocene strata, at S. Gaudens, in France. The characters of the first mandible discovered led to the conclusion that *Dryopithecus* was more highly evolved than any of the anthropoid apes, and was, therefore, a link between these and man. After much discussion this view has been abandoned, for the discovery of other and better preserved jaws allowed the measurement of the length and breadth of the molars and the estimation of incurving of the postero-lateral cusp. At present the precise relation of *Dryopithecus* to other anthropoids is uncertain.

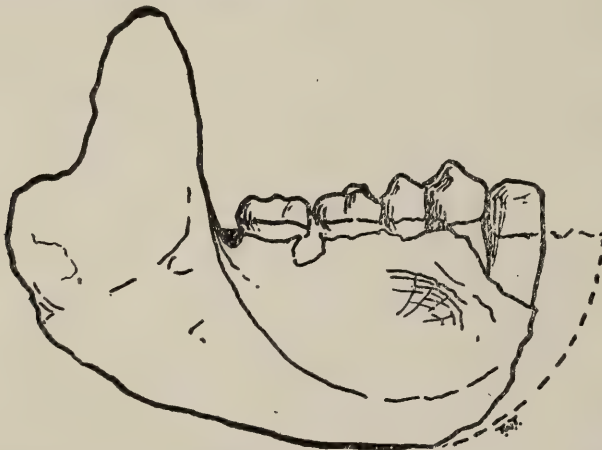


Fig. IV. Fragment of the Right Half of the Mandible of *Dryopithecus*.  
Two-thirds Natural Size.

Note the vertical height of the body of the bone, the large canine, the greater size of the first premolar over the second, and the anthropoid-like first and second molars. The dotted lines represent the fragment containing the missing incisors; the third molar has been lost.

The canine is very large, the first premolar is larger than the second, and the lines of the teeth converge as they pass backward from the canines. These features are shared in common with the Gorilla. The crenations on the molar cusps are more like those of the Orang and Chimpanzee, but the length of the roots of the teeth is less than that of the roots of the teeth in the Orang. Unlike any of the anthropoids, the symphysis is long and



narrow, and in this feature *Dryopithecus* resembles the Old World apes. The importance of this fossil for the present discussion is that it clearly proves that in the Miocene period the anthropoid ape (and hence probably also the ancestor of man) had attained practically his full modern size. And with that we must hasten on to a type more man-like than those we have discussed.

During 1891 and 1892, Doctor Eugene Dubois, now professor of Geology at Amsterdam, then a Dutch Army Surgeon, was carrying out some excavations in the bank of the Bengawan river, which flows through the moist tropical province of Madiun in Java. Four hundred boxes of fossil remains were shipped by him home to Europe. Among these there were five most important finds, a skull cap (calvaria), a left femur and three teeth. The cast of the skull cap is here reproduced. It presents very well-marked eyebrow ridges, and evidence of massive neck muscles in the bony conformation of the occiput. The sutures have disappeared between the various skull bones, and the ridges marking the upper limit of the temporal muscles are comparatively near the vertex. There is also a certain amount of keeling in an antero-posterior direction along the midline of the vertex.

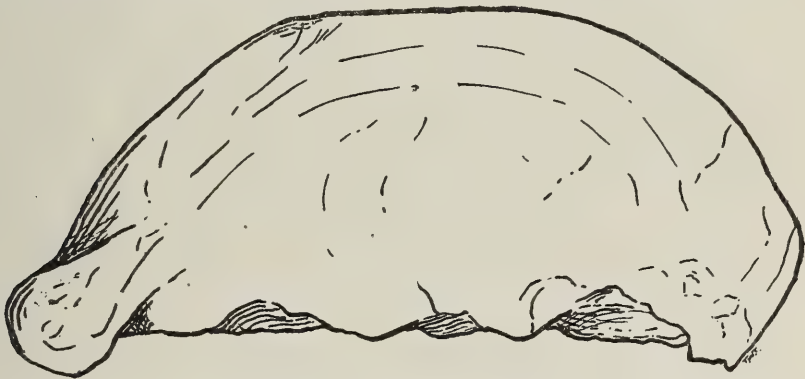


Fig. V. Left Aspect of the Cranial Fragment of *Pithecanthropus*.  
One-half Natural Size.

Note the pronounced supraorbital ridges and prominent external occipital protuberance, the high position of the temporal ridge and the fact that the cranium is neither so low nor so flat as the prominent supraorbital and occipital parts would make it appear to be.

The cranium appears low and flat, but it must be remembered that the prominent supra-orbital ridges and the climbing of the external occipital protuberance and superior curved lines upwards on the back of the skull both tend to exaggerate these characters. So the cranium is neither so low nor so flat as it appears. Its capacity has been estimated at about 850 c. c., a measurement which is probably under the truth. While the calvaria itself falls within the limits of human variation, the actual size of the

brain case is considerably under that of a modern European. In the last-named the cranial capacity is about 1500 c. c., while that of an adult male Gorilla equals some 600 c. c. As in the Gorilla, the comparatively small size of the brain in this creature was associated with great thickness of the cranial walls. The union of the suture lines is again a distinct simian feature, although it has been suggested that the individual was a human microcephalic idiot. The measurements of the calvaria, however, do not sustain this contention. The height of the temporal ridges and the roundness of the brain case (although this masked by the long skull) are also simian in type. But the absolute size of the brain case is too great to belong to any anthropoid ape such as we know, while the teeth are too small. The slope of the occiput is more human in type, and the site of maximum breadth of the skull is too far forward for that of an ape. For these reasons the animal was considered to be an intermediate form between the anthropoid apes and man, and was named *Pithecanthropus erectus*. It is but fair to add that some authorities claim the fossil as an ape, others as a definite early kind of man.

The creature lived at the end of the Pliocene or the beginning of the Pleistocene period, exactly which it is difficult to determine. Great controversy was raised when Dubois first published his memoir on these remains, and opinion is still divided as to whether or no *Pithecanthropus* is on the direct line of human descent. Probably it is most accurate to state that the creature represents one of the dead twigs on a short, low branch of the genealogical tree.

The height of the temporal ridges indicates that the animal possessed a large temporal muscle. With this there must necessarily have been a massive mandible. Such an interpretation is borne out by two other anatomical facts. The pronounced eye-brow ridges are invariably present with powerful muscles of mastication, and the large surface for the attachment of muscles of the neck is dependent on the need for powerful hafting of the head on to the neck to support a massive and prominent muzzle. The large supraorbital ridges are found in native Australians, but in these the sagittal arc is greater and the occiput more rounded. The characters of the teeth (second and third upper molars, and second lower premolar) indicate that mastication was performed then as now. Hence we may conclude that the canine was reduced in size. For, as pointed out in the previous



paper, mastication such as is typical in man cannot take place so long as the canines remain prominent.

The animal was styled "erectus" because it was supposed to walk upright. This supposition is based on the straightness and slenderness of the shaft of the femur. But as a human femur may be much more curved and less slender than that of a gibbon or lemur, the inference that *Pithecanthropus* walked erect would seem scarcely justifiable. The length of the bone is 455 mm. As the total height of the body is about three and one-half to four times the length of the femur, we may consider *Pithecanthropus* to have measured about five feet six inches. The points to be learned from the study of this fossil are that man attained to his present method of masticating his food, and to practically his present height, while his brain was still comparatively small in bulk. But it would be unwise to maintain that at the period of his evolution which is exemplified by *Pithecanthropus* he necessarily walked upright. There is no evidence in the femur of this fossil of the slouching gait of Neanderthal man, but there is some evidence, not yet refuted, that he may still have been partly arboreal in his habits.

Recently Dr. Walkoff has stated that he believes a modern type of man existed in Java along with *Pithecanthropus*. His evidence is based on a third lower molar tooth found in 1907-8 in the vicinity of the *Pithecanthropus* skeleton. But it is doubtful whether or no this find should be considered genuine, and if genuine, whether the tooth does not really belong to *Pithecanthropus*. At any rate, the tropical province of Madium, locally known as the "Hell" of Java, would not seem to be the most salubrious of places for any one to live. The swamp of these tropical forests is graphically described by Sir Frederick Treves: "It is dismal and dark, cramped, stifling and ruinous. So thick are the boughs overhead that no light of the sun can ever pierce the dark mildewed tangle of the place. So dense are the trunks below that none but a small, mean beast or a creeping thing could find a way through the network. In the undergrowth of this swamp of despair are horrible fungi bloated and sodden. Some are scarlet, some are spotted like snakes, some have the pallor of a corpse. All seem swollen with venom. There are ghastly weeds, too, lank, colorless and sapless—the seedlings of a devil's garden. Their sickly petals point skywards in a kind of hopeless mockery. Out of the slime come crawling things, and among them loathsome land crabs whose legs scratch among the black pulp of rotten leaves."

## THE HISTORY OF THE PHYSIOLOGY OF RESPIRATION\*

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In a discussion of the history of respiration we must consider the phenomenon of gas exchange in the body from both the physical and chemical point of view. An adequate supply of oxygen and a means of expelling the oxidized carbon matter are conditions that are absolutely essential to all life. They constitute the chemical phenomena of respiration. In unicellular animals these changes are affected directly between the air and the cell; however in multicellular animals a more elaborate method is necessary in order that the individual cells may share in this exchange, and more and more complicated physical appliances make their appearance.

The apparent necessity of the respiration led the ancients to ascribe to it the function of cooling the heart and blood. Galen, on the other hand, after describing the respiratory movements in a fairly accurate manner, proceeded to suggest that the addition of air endowed the blood with vital spirits, whereas expired air contained the "fuliginous vapors" expelled from the blood. This is the first conception of the exchange of oxygen and carbon dioxide in the blood, and led Galen to make the interesting suggestion that possibly air may have the same function in the respiration as in combustion. He still adhered however to the old idea that the air cools the heart.

The problem of the respiration remained in this unsatisfactory state for fifteen hundred years, and while a few additional ideas were advanced now and then, we must admit that they did not aid materially in the solution of the puzzle. The great Leonardo da Vinci, who was a painter, soldier, engineer and imaginative experimenter, was interested in respiration, and in a posthumous work we find the following sentence: "It is apparent that fire is always dependant on air, and that neither land nor sea animals can live in air that has been exposed to a flame." He thus shows that there must be an analogy between the two processes.

The work of the Venetian physician, Santorio Santoro

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\*This is the second of a series of lectures delivered before the Sophomore class on the history of physiology. The first lecture of the series appeared in the *Cleveland Medical Journal*, March, 1914.



(1561-1630), is of interest because he was the first to use quantitative methods in the determination of the body's metabolism. By means of a large scale, which was quite sensitive, he determined that there was a large loss of weight which could not be explained by the excretions, and he attributed this loss to the insensible perspiration. If Harvey had correlated this fact with the discovery of the circulation, we might not have had to wait one hundred and fifty years for the correct explanation, namely the loss of carbon from the body through the expired air.

The discovery of the circulation of the blood, which occurred about this time, made it evident that the older theories concerning the respiration had to perish. A change in the blood while passing through the lungs came to be acknowledged by all, but just what this change might be, and how it could be brought about, were problems that remained a mystery for many years, although they were nearly solved shortly after Harvey's death.

The first step toward a true chemical explanation of the respiratory function was made by John Baptista van Helmont, who was born in Brussels in 1577. His many experiments on the growth and the chemical structure of plants led him to believe that their substance is in a large measure produced from water, which in some manner is transformed. In combustion this substance is changed into a gas, which he thought was the same as that produced in the fermentation of wine, and as that present in the famous dog's grotto near Naples, and which he found would not support combustion or life. He called this gas, which we now know was Carbon Dioxide, "the gas silvestre."

Boyle, the inventor of the gas pump and a contemporary of van Helmont, showed that an animal or a flame could not exist in a vacuum, and confirmed van Helmont's experiments that an animal could not live in an atmosphere which had been exposed to a flame.

The next step in the development of the respiration was made by Boyle's friend and pupil, Robert Hooke, who held the position of demonstrator of experiments for the newly founded Royal Society of London. In 1667 he delighted the fellows with a demonstration of artificial respiration, in which he showed that life could be maintained without respiratory movements. In a later experiment he demonstrated that it was possible to keep an animal alive by forcing a continual blast of air through the lungs, providing the air had a free exit through holes in the lung tissue.

At the close of the experiments, he asked if it was not probable that venous blood would support life if it was exposed to the air, which shows that he understood the respiratory function even though he did not explain it

Lower, who was an assistant of Willis, the famous brain anatomist, and who was contemporaneous with Hooke, performed many experiments on the respiration and circulation in animals. He is famed as the first to perform and describe a transfusion of blood, and on account of sepsis clotting and toxic reactions he was not able to fulfill the hopes that his method inspired. His work on the respiration proved that the change from venous into arterial blood occurs in the lungs and not in the heart, as had been taught. He showed that by artificial respiration he could make the blood in the left side of the heart arterial, and that by ceasing to administer air that blood became venous. He explained these changes by the fact that the blood must take up something from the air.

At the same time there lived another most interesting young man named John Mayow, who studied law at the University of Oxford, and later became a very successful attorney at Bath. He died at the early age of 35 and had done all of his scientific work before he was 30, yet in the short time he devoted to science, while a student at Oxford, he did more toward solving the problems of respiration than all who had gone before him. His work and life are so interesting that we will go somewhat into detail.

In 1668 he published a little work containing four papers which were entitled: (1) *de sal nitro et spiritu nitro aereo*; (2) *re respiratione*; (3) *de respiratione foetus in uteri et ovo*; (4) *de motu musculari et spiritibus*. In the first tract Mayow shows that it was not the entire air which was necessary for the respiration, but rather a particular part of it, which he called *igneo-aereus*, or *sal nitro-aereum*. In his development of the subject he calls attention to the method employed in the manufacture of nitre, which consisted in allowing animal matter to decompose in the presence of air and thereafter collecting the nitre thus formed by solution and crystalization. Hence he believed that the nitre was derived partly from the air, and partly from the earth. He thought that the acid portion was derived from the air and called it "*spiritus nitro-aereus*." In attempting to analyze the "*nitro-aereus agent*," he calls attention to the experiment of Boyle,



which showed that air was necessary for life and combustion since neither could exist in a vacuum. He plainly points out, however, that all of the air is not necessary either for a flame or for life, since there is a large amount of air left after a flame has gone out or an animal has been suffocated in a closed vessel.

He showed that gunpowder could be burned in the absence of air, and concluded that the nitre it contains must furnish the "spiritus nitro-aereus" substance for combustion. He further showed that antimonium would increase in weight when exposed to the sun's heat, collected by a burning glass, whereas there was no increase when it was treated in the same manner in a vacuum. Hence he attributed this to a union, during calcination, with his "nitro-aereus gas." He then concluded that the part of the air which is concerned in combustion, in respiration, in the production of nitre, and in the change produced in the antimonium were the same. He observed that when a candle is burned in a flask over water or when an animal is placed in such a flask, the amount of air in the flask is reduced after a time; and he attributed this loss to the destruction of the elastic quality of air due to change in the "nitro-aereus gas." This, of course, is due to the disappearance of oxygen and the solution in water of carbon dioxide that has formed, thus reducing the volume of air in the flask.

In the second paper he describes the mechanics of the enlargement of the thorax during inspiration, and shows that the air is forced by atmospheric pressure into the air sacs. He made a model of the thorax and the lungs, by using a bellows in which he placed a bladder, and demonstrated that when the bellows were expanded the bladder likewise was expanded.

He next considered the use of breathing, and rejecting all the older theories, which he thought entirely absurd, states, "it is clear that animals exhaust the air of certain vital particles which are of an elastic nature. On the other hand, there cannot be the slightest doubt but that some constituent of the air enters the blood during breathing." After a short discussion as to the manner in which the air enters the blood, he considers "what that constituent of the air may be, which thus passes into the blood, and is so necessary to life that we cannot live a moment's time without it." He naturally thinks that it is the "nitro-aereus portion," but says that it is not clear just what part this gas plays in life. He believed that it was necessary for all vital phenomena,

and attributes animal heat to the union of "nitro-aereus" gas with the combustible matter of the body.

He showed that during exercise there is an increase of body heat accompanied by an increase in the amount of air inspired. He recognized that the fish gets its air from that dissolved in the water, and that the chick breathes air taken up by the umbilical arteries from the pores of the shell, and that the foetus derived its air from that dissolved in the mother's blood. It will thus be seen that Mayow had a clear understanding of the most significant properties of the gas which we now call oxygen and of the mode of its entrance into the blood.

The times were not ripe, however, for the full acceptance of all that Mayow had shown and he died too young to develop his ideas further. In a few years his work was forgotten, and so John Mayow, the first true discoverer of oxygen and expositor of its use in the body, is classed in the same category as the men who contributed to the discovery of the circulation before Harvey.

Scarcely thirty years after Mayow's death, a chemist at Halle, named Stahl, taught that the heat of the body was due to the friction which the capillaries offered to the flow of blood, and that the respiratory process regulated this heat production by varying the size of the capillaries of the lung and in actually cooling the blood. Fifty years later the Swiss physiologist, Haller, endorsed Stahl's as the most probable explanation of heat formation and of the function of the respiration.

Stahl was also the author of the phlogiston theory of combustion which had such force during the eighteenth century and which was in brief that when a body burns it suffers a loss of phlogiston and becomes dephlogisticated.

Stephen Hales, the interesting old parson, whom we mentioned in connection with the circulation, was the first to point out that gases may exist in a free or a combined state. This idea, combined with the method he invented of collecting gas over mercury, had a notable influence on the work of later men.

In 1754, Joseph Black, professor of chemistry at Glasgow, discovered that mild lime lost weight when it was burnt into caustic lime, and likewise that when it was treated with acids, it gave up gas or air. He then determined that mild alkalies were a compound of caustic alkalies and a gas, and that quick lime became mild lime when exposed to the air. He concluded that this gas must be present in the atmosphere, and gave it the name



of "fixed air." He found that this fixed air gave a white precipitation when introduced into lime water and made use of this test to show that the gases from fermenting beer, burning coal, and expired air are practically the same. He showed that fixed air would not support a flame or life. Despite the fact that van Helmont a hundred years before had described this gas as the gas Silvestre, and even though Black did not understand its composition sufficiently to correctly name it, he nevertheless was the true discoverer of carbon dioxide.

Black thought that his gas composed all of that portion of the atmosphere that was not useful in respiration (an error which was corrected by the discovery of nitrogen by Scheel and Rutherford and later by Cavendish.)

After a lapse of a hundred years, in the same manner as Black had rediscovered carbon dioxide, we find two men, Priestly, an Englishman, and Lavoisier, a Frenchman, associated in the rediscovery of Mayow's nitro-aereus gas. These men share the honor of discovering and giving a physiological explanation to the use of oxygen in the respiratory function.

The life of Joseph Priestly is one of the most interesting of the early scientific workers. Born in Leeds, England, in 1733, the son of rather poor parents, he was educated for the Unitarian ministry, and died in America in 1804, after ten years' residence in Northumberland, Pa. He was interested in many subjects, and as one biographer says of him, he enjoys the reputation of having written more and of being read less than any other author. His works number about two hundred volumes and include works on political economy, grammar, oratory, electricity, chemistry, and indeed almost all subjects he happened to become interested in. It is of interest to us Americans to know that he was a friend of Benjamin Franklin, who encouraged him to write a history of electricity, although up to that time Priestly was ignorant of the subject.

Priestly's first work on respiration was an inquiry as to whether it was possible in any way to return to its original condition air which had been vitiated by burning coal. After many fruitless endeavors, he found that plants would affect a change. He determined that the part taken up was that which had to do with combustion and respiration. By heating red oxide of mercury with a burning glass, he found that a gas was given off which was identical with that used by an animal in respiration.

Influenced by Stahl's theory of combustion, Priestly called the gas dephlogisticated air; it was the same gas which Mayow had described.

By suitable methods he collected the irrespirable portion of the atmosphere and the gas from burning coal. He named these gases phlogisticated air because he thought they were completely saturated with phlogiston and could therefore neither maintain life nor support flame. He thought that the function of the respiratory act was to allow phlogiston which was present in the blood to escape into the air, and that the phlogiston in the coal was set free during combustion. He explained the presence of Black's fixed air in the expired air, by saying that the freed phlogiston caused fixed air to be formed from something present in the atmosphere. If Priestly had not been under the influence of a theory and had thought for himself, he would have been able to finish the work he had begun. As it was, it was necessary for a chemist to take his work and give it a proper interpretation.

When Priestly was in France in 1775, the year he published his paper on dephlogisticated air, he met the French chemist, Lavoisier, who very shortly found the correct explanation of Priestly's discoveries.

Born in 1743 and educated for the profession of law, Lavoisier devoted his entire life to scientific research and to political problems which were at that time disturbing France. When he was but twenty-five years old he was admitted to the Academy of Sciences. Later he became very prominent in the political events of the French revolution and in 1794 he was beheaded by the order of the National Convention.

In 1777 Lavoisier issued a paper entitled "General Considerations Concerning the Nature of Acids and the Principles of Which They are Composed." In this paper he demonstrates that the metallic oxides are heavier than their respective metals and therefore the phlogiston theory is not applicable in this case. He also claims that the air is not made up of a single substance, but rather of two or more constituents, one of which he calls Azota, which is Nitrogen, and the other Oxygenium. He thought the latter was the gas concerned in respiration.

Shortly after this he proved that the fixed air of Black's was a union of carbon and oxygen in a perfectly definite relationship. He observed the evolution of heat in this reaction and attributed the evolution of heat in the animal's body to this phenomenon.



He could not explain what became of the excess of oxygen which was not accounted for by the expired carbon dioxide, until Cavendish showed the possibility of making water out of hydrogen and oxygen.

This made it possible for Lavoisier to complete his theory of respiratory function. He writes that the respiration is the slow burning of carbon and hydrogen in exactly the same manner as that in which a lamp burns; he states his position as follows: "We may then regard as proved: (1) Respiration affects only the air eminently respirable. The rest of the atmosphere, the mephitic part remains unchanged. (2) The calcination of metals in atmospheric air goes on until the air eminently respirable is exhausted and combined with the metal, but will not go on afterwards. (3) Animals shut up in a confined atmosphere succumb so soon as they have absorbed and converted into aeriform calcic acid (carbon dioxide) the greater part of the eminently respirable air.

A little later Lavoisier and Sequin showed that an animal did not use any more oxygen when exposed to an atmosphere of the gas than it did when it was breathing ordinary air. Further they found it possible to replace the nitrogen of the air with hydrogen without any injury to the animal.

The political activities of Priestly and Lavoisier brought about a singular turn in their respective fortunes. Priestly, because of the popular dislike he had aroused in Manchester, fled to London, and shortly after sailed for America. He was literally kicked from his native land. Lavoisier fared even worse. The events of the French Revolution followed each other quickly, and men of power one day found themselves debased on the next. Lavoisier shared this fate, and while Priestly was sailing the waters of the Atlantic on his way to a new home, the greatest scientist of the century found the way to his eternal rest by the aid of the guillotine.

Lavoisier supposed that the oxidation of carbon took place in the lungs, but this was soon shown to be impossible by a mathematician, LaGrange, of Turin, who showed that the change must take place in the blood, since the lungs obviously were not the seat of the heat formation for the body.

Spallanzani, whom we mentioned as the discoverer of the capillary circulation in the developing chick, made a great number of comparative physiological studies on the use of oxygen in life. He showed that it is absorbed by the blood and so carried to the

tissues and also that the output of carbon dioxide was to a limited extent independent of the oxygen intake. He demonstrated the latter point by examining the gas exchange in fish placed in boiled water, and in animals deprived of their oxygen supply. He did not live long enough to develop his last observation, and his experimental notes, edited after his death, lack many details which are desired today.

A little later William Edwards, 1776-1842, taking up the work of Spallanzani, showed that a frog deprived of oxygen would in a short time give off a volume of gas which was greater than the volume of the body. He also showed that a babe if made to inspire hydrogen at its first inspiration would return a large amount of carbon dioxide. From these experiments he argued that the oxygen must be carried in great quantities in the circulating blood, and that the change from carbon to carbon dioxide must take place in the tissues or the blood.

Even the work of Edwards failed to produce the impression that we believe it should have, and the teaching that the oxidative changes took place in the lungs were accepted until Magnus in 1837 showed by means of the air pump that oxygen and carbon dioxide were found in different amounts in the arterial and venous blood.

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## REMARKS ON A CASE OF POST-OPERATIVE INTERSTITIAL HERNIA AND ON A CASE OF HYPERNEPHROMA WITH METASTASIS IN THE CHEST WALL\*

By CHARLES E. BRIGGS, M. D., Cleveland

### I. Remarks on a Case of Post-Operative Interstitial Hernia

This case is presented in order to emphasize certain unusual features in the history and physical examination which led to a diagnosis of abdominal tumor, and to briefly describe the complicated condition of the sac and its contents. The diagnosis of post-operative hernia is ordinarily such a simple matter that it would seem almost inexcusable for one to be misled, particularly when the patient herself suggested what proved to be the correct diagnosis.

The patient was a woman of sixty years, whose immediate history dated from six years ago when she had an abscess in the right iliac fossa thought to be of appendical origin, and which was drained through an incision a little below the anterior-superior spine and external to the linea semilunares. Her convalescence was prolonged, and on getting up she was conscious of an indefinite tumor formation in the right iliac fossa in the region of her operation; this kept increasing in size gradually to the present time. The mass was always rather hard, only slightly movable, never showing any variation in size except for its gradual increase, showing no difference in consistency under varying conditions in the bowel movements, never reducible, and at no time thought to give any impulse on coughing. Aside from a life-long tendency to constipation there had never been any disturbance of the bowel movements and at no time was there anything to suggest intestinal obstruction. On several occasions there had been a considerable degree of sensitiveness in the region of the tumor which was thought to be associated with a mild degree of fever, lasting over a period of one or two weeks, and it was while recovering from a similar attack that the patient was recently seen. During the development of this condition she had occasionally been under the care of a physician who appeared to have considered it an abdominal tumor and not a hernia, which is

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\*Copy prepared on request for *The Cleveland Medical Journal*, based on the verbal presentation of two cases at a meeting of the Clinical and Pathological Section of the Cleveland Academy of Medicine at Lakeside Hospital, March 6, 1914.

of interest in indicating the interpretation of the condition during its progress.

Physical examination disclosed what appeared to be a large tumor seeming to come from deep in the abdomen, probably involving the pelvis and the right iliac fossa. In the dorsal position it was about 12 cm. to 15 cm. in diameter and appeared to be somewhat constricted horizontally about the middle, dividing it roughly into an upper or ventral, and a lower or dorsal portion. The tumor as a whole seemed slightly movable, the ventral portion a little more so, and in turning to the left side the tumor shifted appreciably in that direction. It was smooth in outline and well circumscribed. The central portion of the ventral part, over an area of about 8 cm., was soft, fluctuating, and on percussion gave the impression of deep-seated tympany; the tone of this percussion did not change appreciably under varying conditions of the bowels during a week's observation; the remainder of the tumor was hard and flat on percussion. There was no alteration of cutaneous sensation. There was a slight degree of sensitiveness generally over the tumor which was rather more marked in one or two areas of the ventral portion. Auscultation gave no suggestion of shifting gas in the fluctuating area. There did not appear to be an abnormal amount of abdominal subcutaneous fat. On pelvic examination the cervix was freely movable independently of the tumor, but the fundus could not be felt; the left lateral structures appeared normal, and on the right side the tumor mass was just appreciable above the region of the ovary, but seemed to bear no relation to the lateral structures. An X-ray examination with bismuth showed the cecum to be displaced upward, the lower border being about on the level with the anterior superior spine, but there was no displacement inward. The impression received was that of an abdominal tumor, possibly a multilocular cyst of the right ovary or a retroperitoneal cyst; the apparent independence of the right tube and ovary in the presence of so large a tumor did not favor the former in spite of the other consistent features in the physical examination; the possibility of a retroperitoneal cyst was suggested by the elevation of the colon and the presence of tympany; a reasonable probability of ventral hernia, as suggested by the patient, did not seem to exist except within the limits of a very general consideration.

A longitudinal incision was made over the tumor in the line of the central portion of the right rectus muscle. It was now



found that the abdominal fat was abnormally thick. After going through about 4 cm. of this tissue the inner side of the tumor was encountered and found to be a soft, fluctuating mass, tympanitic on percussion, unquestionably a hernia. As the dissection progressed, shifting outward toward the opening of the former operation, a very complicated and unusual condition of the sac and its contents was developed. The extreme thickness of the abdominal fat was about 7 cm. The central fluctuating portion of the tumor was found to be cecum, projecting forward from the ring in the form of a bow, the exposed portion being about 17 cm. long. From the main portion there extended from the outer side above and below two protrusions about 4 cm. by 5 cm., resembling diverticula, and projecting into the subcutaneous tissue on a level with the most superficial portion of the main part of the cecum. Coming through the ring, above, below, and to the other side of the cecum was a large mass of omentum, consisting of four or five distinct projections into the subcutaneous tissue between the level of the cecum and the fascia of the external oblique; the two larger of these, as in the case of the cecal protrusions, extended outside, one above and one below, both of these lying almost directly below the cecal protrusions, the lower one being a mass about 4 cm. by 7 cm. by 10 cm., the upper one about half this size, and the remainder resembling thumb-like processes. The omentum was in a state of severe congestion, quite friable, and in several places was readily penetrated with the blunt finger. The circulation of the exposed portion of the cecum was seriously altered, the bowel congested, its walls so friable that at several points perforation appeared imminent, at two of which locations during gentle manipulation rupture actually occurred with loss of intestinal contents. In developing the neck of the hernia at the ring a small abscess was encountered underneath the cecum where it projected below; it was about 3 cm. in diameter with walls about 2 mm. thick, and containing pus and fecal matter. The opening of the bowel was found to be at the junction of the ileum and cecum, where the intestine appeared to have been strangulated in its exit from the ring for about a quarter of the circumference of the ileo-cecal junction, as if a knuckle had protruded at this point. The hernial ring was enlarged and the abdomen explored. Filling the right iliac fossa was a mass consisting of adherent intestine and omentum, and corresponding to the dorsal portion of the tumor; the adhesion showed varying grades of

organization, some recent and readily separated, others old and firm; no serious effort was made to untangle this mass. The projections of omentum were ligated at the ring and removed. The cecum was repaired with considerable difficulty owing to the condition of its walls; the repair at the ileo-cecal valve caused considerable constriction but permitted the passage of gas; the age and the condition of the patient seemed to contra-indicate a resection of the injured portion of the colon. The appendix, about 7 cm. long, was isolated from the maze of surrounding adhesions and removed; it was very friable, deeply congested, and was lying just inside the abdominal cavity. Owing to the intra-abdominal condition the reduction of the colon was accomplished with considerable difficulty and an undesirable but necessary degree of pressure. The complicated sac was readily separated from the surrounding structures by blunt dissection, and was removed at the margin of the ring; the completion of this process left a series of subcutaneous caverns, corresponding to the projections of the hernia, the deeper ones underlying more or less directly the superficial ones like the tunnels of a mine, and it is to emphasize the presence of these projections at different levels in the abdominal walls that the term interstitial has been used; the deeper of these, running downward and forward and formally containing omentum, was a cavity large enough to accommodate the closed fist, and this pocket was drained separately by a small incision at its most independent portion. Two cigarette drains were placed in the abdomen in the region of the intestinal repair as it was felt a certain amount of temporary leakage would be almost sure to follow; around these drains the abdominal wall was closed in layers with chronic catgut.

Although the operation was prolonged and trying, the patient made an excellent recovery. About the fourth day there was a little fecal discharge which ceased permanently in about three days. An area of about 3 cm. in diameter just to the other side of the wound sloughed out without evidence of actual infection, the reason for which was not apparent.

## **II. A Case of Hypernephroma with Metastasis in the Chest Wall**

There have been but a few cases of hypernephroma in this hospital, and so far as I am able to learn there has been no previous clinical instance of metastasis from such a tumor, as established



within even reasonable probability. The man presented is forty-six years old, a Pole, and the history has been obtained from various sources with much difficulty and considerable uncertainty; the accuracy of some details is felt to be a matter of more or less question. It appears that about six months ago the man was seen by a physician of this city and thought to have a tumor of the right chest wall corresponding closely in location and physical character to the one about to be described on the left side; this tumor was said to have attained its size within three or four weeks and disappeared completely within two or three weeks under mercurial treatment. Early in January, 1914, he was seen by one of the physicians of the Lakeside Dispensary and was thought to have tuberculosis of the right kidney; there was a large, fluctuating tumor in this region with signs in the lungs which were thought to indicate tuberculosis; the man was in such a reduced condition it was thought he would live but a short time. Operation was advised, and it was found later that this had been done at a neighboring hospital. On entrance to the hospital at that time he was said to be in a badly run-down condition, showed a slight elevation of temperature, with a moderate area of fluctuation in the region of the right kidney which was thought to be an abscess. On incising this area only a few drams of pus-like fluid was encountered, the culture from which grew no organisms; beyond this abscess was found what was thought to be a tumor of the kidney which was considered inoperable and no attempt at removal was made; a small piece of this tumor was removed, the tissue seemed to be sparingly vascular, and was thought to contain a large amount of fibrous tissue; the wound healed rapidly and the condition of the man improved very greatly to the great surprise of the physician who had made the original diagnosis of tuberculosis. The tissue removed was said to show sarcoma. The patient was first seen at this hospital about one month ago because of a tumor of the left chest wall. The patient stated that this had appeared about two months previously, but the physician who had made a careful examination of the chest in January found no evidence of the tumor at that time and when the patient left the hospital following the operation mentioned it was distinctly stated that no such tumor existed.

The tumor was situated in the left posterior axillary line about the level of the eighth rib, about 6 cm. by 10 cm. in diameter, ovoid in shape, raised about 2 cm. from the level of the chest

wall, showing no discoloration, hard, smooth, not sensitive, flat on percussion, the skin over it freely movable, the tumor itself rather firmly but not absolutely fixed to the tissues underneath. The Wassermann reaction was negative. The X-ray showed no involvement of the ribs but suggested a thickening of the periosteum. A probable diagnosis of periosteal sarcoma was made. In the meantime the details of the history as given above were obtained and after some delay a section of the tissue taken at the operation mentioned was obtained. This section showed definitely hypernephroma and not sarcoma. Stereoscopic X-ray plates taken at the present time, about three weeks after the first examination, show definite and unmistakable involvement of the rib on its lower and internal aspect for a distance of about 3 cm. surrounding which is an indefinite haziness which is thought to indicate involvement of the pleura and probably adjacent lung tissue; the plates also show involvement of the bronchial glands such as is ordinarily interpreted as tuberculosis, but some of which may in this instance be additional metastases. In spite of a number of contradictory statements regarding the history and development of the case, it is felt that the connection between the kidney condition and the tumor is established beyond a reasonable probability, that no attempt at removal should be made, and that even removal of a portion of the tumor for examination does not seem altogether justifiable. The tumor would probably show a structure coming under the general conception of endothelioma or perithelioma, which is the form generally thought to be shown by metastases from such new growths.



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Short notes upon clinical experiences or reports of interesting cases will be welcomed by the editors.

Original articles are accepted for publication by this Journal only with the distinct understanding that they are contributed solely to this Journal and will not be published elsewhere as original.

## EDITORIAL

### Sanitary and Other Surveys in Cleveland

The report of a partial sanitary survey in Cleveland during 1912-1913, published in another part of this issue, is of great interest from several points of view. The survey was completed through a co-operation of the Health Department and the University and covers not an inconsiderable part of the city. The conditions found are facts and not fictions, and the reasons for

their presence, and the reasons for the persistence of some of them, are well discussed in the paper. There is at present a wide movement for a survey of Cleveland, with the ostensible idea of finding out in what points there may be improvement, and of urging these improvements. It is, therefore, of great interest to find that there has been so much objection on the part of such politicians as lived in or near the districts concerned, that it was found practically impossible to bring out the paper in any publication controlled by the city. In other words, whatever is found out in a survey must not be published if it reflects on the district of A or B. This is, of course, the same attitude as was taken by San Francisco at the time plague gained a foothold there, and strenuous endeavors were made to conceal the facts for fear they would temporarily injure the business prospects of the city. It is extraordinary that such a short-sighted policy should prevail, as it should be clear to the least intelligent that it is only a matter of time before the facts do appear, and that a city which is removing its disabilities is a better place to settle in than one which is using the same concealment methods as are known to belong to the ostrich. If conditions are bad they must be changed, and it should be obvious that no evil will be remedied till it is known to exist. It is also not probable that the objectors to publicity have been doing missionary work in their own district for the improvement of the conditions they wish concealed.

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**Warning to Users of Turpentine for Medicinal or Veterinary Purposes—Users of This Substance Cautioned to Make Certain That It Is Not Adulterated.**—Washington, D. C. As the result of an investigation by the United States Department of Agriculture, it has been found that the adulteration of turpentine with mineral oils is so widespread that druggists and manufacturers of pharmaceutical products and grocers' sundries used for medicinal and veterinary purposes should exercise special caution in purchasing turpentine. Those who use turpentine for this purpose, unless they are careful, run the risk of obtaining an adulterated article and unnecessarily laying themselves open to prosecution under the Food and Drugs Act.

It has been found, moreover, that the turpentine sold to the country stores especially, as usually put out by dealers and manufacturers of groceries' sundries, is often short in volume by as much as 5 or 10 per cent. Dealers, therefore, should also protect themselves through a guarantee from the wholesaler that the bottle contains the full declared volume.

The Department has found that turpentine may be adulterated in the South where it is made and that the further it gets from the South the more extensively and heavily it is adulterated.

In all cases, druggists, manufacturers and wholesale grocers should satisfy themselves that the turpentine is free from adulteration and is true to marked volume.



## DEPARTMENT OF THERAPEUTICS

Conducted by J. B. McGEE, M. D.

**The Pineal Gland:** Chas. C. Dana, Wm. N. Berkely, H. H. Goddard and Walter S. Cornell contribute a report on the functions of the pineal gland to the February number of the *Monthly Cyclopaedia*. The pineal gland in man has become distinctly a glandular organ, with secreting cells, and probably a few nerve-fibres. It tends to undergo deterioration about the seventh or eighth year, but up to that time it may be supposed to have some function. In their therapeutic experiments in human beings, after various unsatisfactory methods of dosage, a physiologic dose was adopted, the attempt being made to estimate the actual work that one gland could do instead of its mere weight. The method was as follows: twelve bullock's pineals, perfectly fresh, are rubbed up with a suitable amount of milk-sugar till extinguished. The mass thus obtained, after thorough drying, is divided into one hundred capsules. Each corresponds to 150 pounds of live bullock. From the total of about fifty children treated with the pineal preparation, the authors conclude that in certain cases of retarded development in children, pineal gland may be a remedy of value. In cases of total idiocy, and gross physical defect, however, they found the gland useless. In proportion as the patient was less characterized by physical stigmata, so much more benefit did he seem to reap from pineal medication. Whether there be any specific mental defect of childhood which may be called *apinealism* or *hypopinealism* remains for the future to decide. There is, however, no question that the gland is of benefit in many cases of simple retardation, and even in such specific diseases as Mongolism. In one series of children the *physical advance* was more marked in the control cases than in the subjects while the subjects advanced considerably more rapidly than the controls in mental accomplishment. It seems natural to suppose, that given the existence in each subject of only a certain *quantum* of energy, the more this is deflected to mental lines of development, the less will be left for physical growth. The same journal reports (via *Dutch Pediatric Society, Bulletin Medical*) precocity in a case of pineal tumor. Von der Heide describes the case of an infant, who at the age of four months developed, first hydrocephalus with spastic paralysis. The hydrocephalus soon ceased to increase, but the child remained backward, mentally, while physically an abnormally rapid development took place. At 18 months, the pubis became covered with hair, the genitals developed to an exaggerated extent, and the voice changed. This syndrome is characteristic of pineal tumors, as in the case reported by Raymond and Claude, in which confirmation by autopsy was obtained. The X-ray examination in the author's case, afforded ground for believing that a pineal tumor was actually present.

**Pancreatin:** In the February number of the *Archives of Internal Medicine*, J. H. Long and G. U. Muhleman consider the mutual action of certain digestive ferments, and as regards pancreatin, state that there are numerous brands on the market, but many of them come from the same source. It has been found, that while some of these have a fair amylolytic action, their tryptic power is usually low. Some are indeed quite inert. This must follow from the careless process of manufacture often followed, which may consist in the rapid drying of the pancreas gland, the removal of most of the fat by extraction with some convenient solvent, and finally grinding to powder. The temperature of drying undoubtedly is high enough to destroy the sensitive ferments. The tests prescribed by the Pharmacopoeia for pancreatin do not encourage a higher strength than that usually found. In this respect there is a curious contrast between the treatment of pepsin and pancreatin which certainly calls for correction. The point should be kept clearly in mind by physicians, that the pancreatins of the market are mostly weak, and

further, that if they were stronger there is no certainty that they would be of much more use in actual practice, as commonly administered. The question may well be asked, except for the purpose of curdling and partly predigesting milk, why should pancreatins be used at all? As digestive agents, their usefulness is certainly of a very low order, and it is likely that there would be no practical loss in dropping pancreatin entirely from the Pharmacopoeia. It is evident that samples of pancreatin which have stood on drugstore shelves a year or more are liable to be very low in tryptic, as well as in starch-digesting power. The question naturally presents itself, what then is the practical value of these preparations? Certainly pancreatin, as now made, leaves much to be desired. It has yet to earn a place in the category of remedies which are actually useful.

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**Low Blood Pressure:** Edward E. Cornwall in the *New York Medical Journal* for March 7, considers low blood pressure, as in a general way less definite in its pathological significance than high blood pressure. The latter, if pronounced and persistent, in a large proportion of cases means chronic nephritis, sclerosis of the aorta, or arterial sclerosis, or spasm. Low blood pressure, although it frequently points to myocardial degeneration, more often signifies vasomotor relaxation or paralysis, due to toxæmias, or nervous and reflex conditions. His conclusions are: 1 A low systolic pressure, provided the diastolic pressure is correspondingly low, does not necessarily mean poor circulation, although it does imply a diminished reserve power of the circulation. 2 A low systolic pressure with a comparatively high diastolic pressure, and a consequently small pulse pressure, usually means myocardial weakness, with chronic nephritis, arteriosclerosis, or arterial spasm and may be bad prognostically. Toxæmias, both acute and chronic can produce low pressure by dilating the blood vessels and by weakening the myocardium, but the greater part of their effect in the larger number of cases is probably produced by vascular dilatation, either through the vasomotor centre or locally. Chronic tobacco poisoning is a very common cause of persistent low blood pressure. It is possible for a patient to live for several hours with a systolic pressure below 60, and for several days with a systolic pressure below 70, and to walk around without particular symptoms of circulatory distress with a systolic pressure of 90, provided the pulse pressure is sufficiently large. A systolic pressure of 100 or lower in an adult usually calls for treatment. The neurotic factor in the patient, and the personal factor in the observer, may require considerable allowance to be made for them in the interpretation of blood pressure findings; and the clinician must constantly guard against being misled by blood pressure findings, and especially against ascribing too much importance to them when not supported by other evidences of disease. In the treatment of low blood pressure of course the removal of the cause is the first duty. If due to a chronic toxæmia, this can often be removed or lessened, and the removal of chronic tobacco toxæmia, is possible, but often difficult. An essential element in the treatment of low blood pressure is rest. If there are definite signs of circulatory disturbance or insufficiency, heart stimulants may be called for and the drugs of this class which he has found most generally useful are strychnin, stropanthus and caffein. Digitalis may be of great service in cases with low diastolic pressure, and a fairly healthy myocardium, but that drug is contraindicated in cases with myocardial degeneration and relatively high diastolic pressure. In cases with severe, sudden failing of diastolic pressure due to toxæmic vasomotor dilatation, adrenalin and pituitin seem suitable agents to use. He has had little experience, and not much success with these agents. In some cases with a relatively high diastolic pressure, and a small pulse pressure nitroglycerin may prove useful by enlarging the pulse pressure, but nitroglycerin is absolutely contraindicated in cases in which the diastolic pressure is low.



**High Blood Pressure:** *American Medicine* in the February number calls attention to the compensatory nature of high blood pressure as an idea to which clinicians must give more heed than they have in the past. Indeed, all the accepted theories of the relation between arteriosclerosis, cardiac hypertrophy, interstitial nephritis, high blood pressure and protein poisons are sadly in need of revision. We have long abandoned the idea that alcohol was the main cause of hard arteries for that poison is relaxing, so we turned to excessive exertion, or auto-intoxication of defective digestion, as the main causes of the high blood pressure on which arteriosclerosis was supposed to depend. It is certainly astonishing how large a proportion of cases do have a history of hard labor or indigestion, but it is equally notable how many hard workers or dyspeptics escape. The condition is not infrequently the cause of death of sedentary men who have led sedentary lives, so we must seek other causes. We may have to fall back on the old theory that some of us are so poorly fed in childhood that our tubing is of poor material, and hardens under the normal stress of life, and that high pressure is a compensation to force blood into areas which would otherwise be ischaemic. On this theory, the cardiac hypertrophy is a resulting compensation, while the nephritis is merely part of the primary arteriosclerosis—the whole process being unpreventable results of defective development. The picture is certainly seen in degenerates more often than in the normal.

**Pharmacotherapy:** In the *Medical Record* for March 7 Cloetta (*Deut. Med. Wochenschrift*) summarizes the progress of pharmacotherapy during 1913. He refers first to the revived interest in calcium. Bread containing the latter is made, and this should suffice to guarantee to the body its daily requirement. Calcium has gained ground as a remedy for hay fever. It has been combined with ichthyol and injected for tuberculosis. Casein calcium added to dilute cow's milk seems equal to albumin milk in infant feeding. The combination of bromin with calcium should be and is of value in epilepsy, because the latter tends to depress nervous excitability as well as the former. Atropin has been found of value in seasickness, and has been termed the natural remedy, one milligram of the sulphate to be given, and if necessary to be repeated. Many drugs cited are by no means new, and certain old ones acquire new value; thus American wormseed has been found of great value in Europe for ankylostomiasis. Opium and morphin retard the action of the stomach, intestine and colon. Pal has shown that opium contains two groups of alkaloids which behave differently in the intestine. The first comprising morphin, codein and thebain stimulate the musculature of the entire intestinal wall, both longitudinal and circular fibres. The second group comprising nicotin, papaverin, and narcein exert the opposite or depressing action. Opium itself therefore exhibits a double activity, for while the circular fibres are constricted, the longitudinal ones are relaxed. Papaverin seems to be an ideal depressant in spasm of the stomach and intestine. Among other discoveries in the opium group is the superiority of codein, hydrate to codein. It has been learned that belladonna (tincture) given in somewhat large doses persistently, is able to hasten metabolism, or at least to reduce weight. The former recommendations of pyocyanase for local use in infectious anginas has been revived by the introduction of another preparation made from a culture of the *B. pyocyanus*.

**Pneumonia:** Norman B. Gwyn in the February number of the *Therapeutic Gazette* reviews the treatment of the pneumonias at the Philadelphia hospital in the season of 1912-1913. Although many different drugs are given, the general treatment is the open air method, and the bridge-wards give an excellent opportunity for its application. No matter what the special treatment ordered, the patient in the bridge-wards receives fresh outside air, plenty of water by mouth, and a liquid

diet. Of 111 cases given the open air treatment, 45 died, an appalling mortality. Fresh cold air did not save the moribund, the alcoholic, the aged, or the case infected with a virulent pneumococcus. It had however, some very beneficial effects. Fever seemed to be influenced; after 24 hours in the open, a slight drop in the temperature was usual. The drop is from one to two degrees, and in the absence of complications, the high level of the first day is rarely reached again. Respiratory distress seemed to be relieved. The average respiratory rate of the open-air cases was 35.4 per minute, that of the indoor cases was 46.7. Early cyanosis appears less often. Diuresis seemed to be produced, though it is to be remembered that large quantities of water are given regularly. Sixty to ninety ounces of urine per day are recorded frequently during a spell of cold weather; not one of the indoor cases approached these figures. Beneficial effects upon pulse rate and blood pressure are not easily demonstrated; the average "out-in-air" pulse rate seemed to be 111, and showed but little variation till the crisis; the average indoor rate was higher at 120. The large amount of poor material in the indoor series must be remembered, however, in any such comparison. Delirium seemed to be a less evident feature in the cases in the open; fifty per cent of the indoor cases were delirious from the start to the finish of their illness; in only 29½ per cent of the others did delirium persist after 48 hours in the open; post-critical delirium, however, and late delirium developing with fresh infection were recorded. Effects upon crisis cannot be positively determined. Exposure to the open air did not forestall complications. As to whether convalescence is hurried, he finds it hard to say. Under the protection of the open-air treatment accessory lines are also carried out. As to digitalis he quotes Mackenzie that tachycardias with the contraction starting at the normal place are due as a rule to some toxin or fever, tuberculosis, alcohol or acute pneumonia. So far he has found such hearts unaffected by digitalis even when pushed to the extent of nausea and vomiting. As to the use of normal saline solution in various ways he quotes Cushing: "Isotonic salt solutions are often administered when the body has lost much fluid, as they are rapidly absorbed, and are devoid of irritant action; thus in hemorrhage, they are injected subcutaneously, intravenously or per rectum." A rapid improvement follows in the circulation and this has given rise to the *erroneous opinion* that such saline infusions stimulate the heart directly, as well as by the mechanical effect of the increase in the fluids of the body. This theory has led to infusions being made in weakness of the heart from other causes than hemorrhage. Gwyn believes these statements as to the use of saline solutions should be carefully considered.

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**Emetin:** *The Medical Review of Reviews* in its February number states that so few are our specifics that they can be counted on the fingers of one hand, and though another has recently been added, beyond a question of doubt, comparatively little attention has been given to the recent acquisition. The reference is to emetin in amoebic dysentery, and it is simply an alkaloid of a drug ipecacuanha, which has been in use for hundreds of years, but far more efficient in its action. The frequency of amoebic dysentery in our climes is open to dispute, but it is certainly more frequent than is commonly supposed. Emetin is the alkaloid of the cephaëlis ipecacuanha, and is best administered in the form of the hydrochlorid. It is obtainable in ampules of 1/3 grain, suitable for hypodermic or intravenous administration. A dose of this size has little or no effect except therapeutically. Rogers has given as much as one grain, two or three times a day, to an adult, without depression, or alarming symptoms. One-half grain injected subcutaneously twice a day, uniformly gives good results without producing sickness and rarely nausea. It acts locally in the intestines, and through the blood. In vitro, high dilutions kill cultures of the amoeba in short time.



In addition emetin used locally in liver abscesses results in marked success. Reports of its use and therapeutic value are now coming in, and though the question of relapse is not definitely settled as yet intermittent treatment will answer the purpose for the present. In studying the reports of the different men who have used the drug, one is awed by the amazing specificity of the remedy. Not only is it certain in its action, but it is prompt, and in a few days all symptoms are cleared up. Of course in moribund cases too much must not be expected, but Rogers has found in postmortems, that even in the moribund cases, the emetin had killed the amoeba, and had effected healing in the intestinal mucosa, though it could not counteract the shock and collapse.

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**Malarial Fever Prevalence in the U. S.**—The results of a study of the prevalence of malarial fever in Alabama, Arkansas, Mississippi, Georgia, Florida, South Carolina and North Carolina, made under the direction of the Surgeon-General of the Public Health Service, are given by R. H. Von Ezdorf, Mobile, Ala. (*Journal A. M. A.*, February 7). The points noticed were the localities in which malaria was endemic and the relative prevalence in these, the types of malaria infections observed, the distribution of anopheline mosquitoes and the relative prevalence of mosquitoes in the several localities with special reference to the anophelines. Circular post-cards with attached reply cards were sent out to all physicians in the several states calling for information on these points for the months of August, September and October, 1913. Many physicians contributed letters giving more detailed information, and many letters asking for information were also received. The tabulations show the number of physicians reporting from the different localities. In order to ascertain definitely the different types of malaria, material for sending blood-smears from active and chronic cases were also sent out to physicians in every county in Alabama, but only a few returns were obtained from the physicians. The specimens were obtained from the following species: *Culex*, *Aedes calopus*, *Anopheles quadrimaculatus*, *A. punctipennis*, *A. crucians*, *Megarrhinus rutilus*, Coq. (classified by Dr. L. O. Howard, Chief of the Bureau of Entomology, Department of Agriculture), and *Psorophora ciliata*. Surveys in selected localities were made, including the geographic and climatic, social, hygienic and economic conditions, and the breeding-places of the anophelines were investigated and local health officers advised of the results and the measures needed to be taken. Some interesting points were noted, particularly the fact that wastes, such as dye and coal-gas products, prevented the breeding of anopheles in ditches, and might be diverted and used in other places to advantage. The importance of making malarial surveys where large impounding of water is done, is emphasized. Blood-smears were obtained from large numbers of persons and a history obtained of each person examined. Arrangements were made for educational work and the methods of meeting the local conditions were explained. An office and laboratory has been established at Mobile, where this work is still being further carried on.

## The Academy of Medicine of Cleveland

### ACADEMY MEETING

The one hundred and eighth regular meeting of the Academy was held at 8:00 P. M., Friday, March 20, 1914, at the Cleveland Medical Library. The President, J. J. Thomas, M. D., in the chair.

The program follows:

**1 Recent Operations in the Treatment of Ulcer of the Stomach and Duodenum and Some Modifications, With Lantern Demonstration, by Carl Beck, M. D., Chicago, Ill.**

In order to understand the work presented this evening it is well to briefly repeat the history of the Surgery of the Stomach for the past 35 years. The discovery of Gastro-enterostomy is owing to an accident of Verfess, who in failing to do an attempted extirpation of the stomach, joined the latter to the intestine. This was about 35 years ago. Shortly afterward in France this operation was widely done for the relief of gastric carcinoma with a mortality of above 40 per cent. Hooker then improved the operation by devising the posterior operation which has since been more in favor than the anterior operation. In the hands of Roux, Kocher, and others the operation has become very useful as a palliative measure, though in Germany and France the argument still goes on as to whether or not the operation is worth while. It has been discovered, however, that the operation has cured a certain number of cases of carcinoma and ulcer of the stomach. Will Mayo has done more than anyone else to establish the operation as the treatment for ulcer of the stomach. Murphy, by the introduction of the "Button," also deserves mention, for this has made the operation possible in many cases that would not have permitted it otherwise.

During the past ten years gastro-enterostomy has been the operation for ulcer of the stomach, but now we see that this does not insure a permanent cure, for too often we see the old troubles returning. There are certain defects in the operation. Patterson of England has brought forward again the anterior operation, but this has the same defects as the old style.

One of the chief defects is that owing to the contraction of the new stomach, food soon again passes over the old route and there is a recurrence of the ulcer. He said that he had seen this in some of his own cases. If the opportunity is given to do another operation in these cases we find that the stomach has been drawn out into a long tube with a small lumen, and that the stomach acts badly physiologically. As a general rule, therefore, after a gastro-enterostomy the stomach contents have a rapid passage through the new lumen, but after the first to third year a part of the food again passes through the pylorus; well cases, if the ulcer has cicatrized without contraction of the pylorus, well and good; if not, the ulcer recurs.

These defects have been somewhat remedied by Eiselsberg, who divided the pylorus and occluded same. Others have followed in his steps and have devised other means of closing the pylorus, some by sutures, and some by other means. In spite of this the opening cannot be kept patent.

Forselle has shown the character of the muscular wall of the stomach, and from the direction taken by the muscle fibres it is seen at once that the opening must contract from the start, and that most of the food must go back along the pylorus. Beck has recently confirmed the observations of Forstello by means of the fluoroscope. To overcome the defects of the old operation he has devised a new method. This method had its inception in some experiments which he and Dr. Alexis Carrel made in Chicago in 1904 and 1905, forming a union between the esophagus and the stomach for the purpose of studying an operative procedure for the cure of obstruction of the esophagus near the cardia by scar or



carcinoma. A flap was turned up from the greater curvature of the stomach of sufficient length to permit of the formation of a tube with which to connect the stomach with the esophagus above.

About eight years later Jianu of Bucharest (after Wullstein and others had done some work in this line) brought out the identical method and published it in Germany, where it is known as the Jianu method. Dr. Willy Meyer, having no knowledge of the priority of the work of Beck and Carrel brought the work of Jianu before the American Medical Association in 1913.

This method has been employed by Dr. Beck for some time for gastro-enterostomy. In this case instead of using the newly formed tube of the stomach wall for union with the esophagus, it is implanted into the small intestine.

A flap is cut, either in the anterior wall or along the greater curvature, but nearer the pylorus than the cardia, and is formed into a wide tube by means of a continuous suture. This is implanted end to side into the small intestine. In order to make the flow of the stomach contents go through the distal portion of the jejunum, the proximal or duodenal arm must be sutured up along the side of the new tube. This last prevents a reflux of the stomach contents backwards towards the pylorus. This method takes but little more time than an ordinary gastro-enterostomy, and it has been demonstrated that this method may be useful in a number of cases. With the exception of but one patient, his work so far has been entirely done upon dogs. He is not yet ready to recommend the employment of this method in all cases and considers that more animal experimentation should be done.

At the conclusion of his paper he showed a series of lantern-slides which pointed out the defects of the old style operation of gastro-enterostomy and illustrated his new method.

George W. Crile, in opening the discussion, said that he had observed the objections raised by Doctor Beck against gastro-enterostomy. He had several times done a second operation to correct the vicious circle that had followed as a result of the anterior operation. In some cases he had found that the loop had assumed the capacity as great or greater than that of the stomach. Occasionally a peptic ulcer may form following this operation. He has now under observation a physician upon whom he had done a gastro-enterostomy as a relief from gastric ulcer. At the present time this patient has considerable hemorrhage and claims that his pain after eating resembles his old symptoms.

He has rarely seen a vicious circle following upon a posterior operation, and considers that this can largely be avoided by perfecting technic and leaving plenty of room for the gastro-enterostomy to ride and to wear comfortably.

He has done experiments to show that there is no method except section for occluding the intestinal tract; the pylorus will reopen after sewing it across, and he has reached the conclusion that the only way to protect the duodenum is to section the pylorus.

In the cases of ulcer of the stomach only a certain number of patients show a permanent cure. The obvious thing to do if the duodenal ulcer is large enough is to section the pylorus; if it is small, make the occlusion by suture; this will allow the ulcer to heal and in time the pylorus will again open. In the case of ulcer of the stomach, he has seen good results following the excision of the ulcer.

He knew of no way to prevent the formation of peptic ulcers; they occur in 3 or 4 cases out of every 100. There is also no way of determining what proportion of these ulcers will go on to malignancy.

F. E. Bunts said that since carcinoma is so often associated with ulcer history he thought that the proper method of treatment would be to excise them whenever possible. Two years ago he had operated upon a woman for gall stones; at this time there was evidences of an old ulcer scar in the region of the pylorus. Six months ago she began to

show symptoms referable to the stomach, and the X-Ray showed a large growth which upon operation was impossible to remove. He asked Doctor Beck if he did not think that all ulcer bearing areas should be removed whenever encountered.

Carl Beck in closing said that while technic had largely done away with the gross manifestations of the vicious circle, yet the fluoroscope showed that these still existed. These are easily diagnosed by means of the X-Ray and they can be corrected by either Brown's or Roux's correction.

He said that Doctor Bunts' question was an important one. He had excised many ulcers and he believed that they should be removed whenever possible.

## **2 The Climatic Cure of Pulmonary Tuberculosis in its Relation to Other Methods of Treatment, by George W. Moorehouse, M. D.**

The value of any particular climate in the cure of pulmonary tuberculosis is still a matter of controversy and it seems that where a recognized method of treatment is carried out the results are similar in a variety of climates. It seems therefore that climate is not of such extreme importance as to be urged in the face of certain contra-indications that might exist and it is the purpose of this paper to set down the indications and contra-indications for a change in climate.

The chief contra-indications to a change of climate may be found in the physical condition of the patient, the inability of his family to finance the cure among strangers, the mental characteristics of the patient, and his plans for the future.

No patient should be sent to die among strangers. The physical condition of the patient is frequently so serious as to imperatively demand that he be at once put to absolute rest either at home or in some near at hand institution. This may be necessary even in the face of the patient's desire to go to a more favorable climate.

Many patients are able to finance themselves through an acute illness who would be unable to do so in the protracted cure of tuberculosis. Unless the patient has money sufficient to supply himself with the needed rest and comforts and at the same time to leave his family well cared for he should be advised against a change in climate.

As to mental attitude, depression and homesickness are apt to counter-balance the favorable effect of change of climate. A patient may not only long for his family, but it is possible to be homesick for old associates.

The patient's plans for the future deserve consideration. The forces that draw a patient back to his home and the resumption of the old form of life, its habits and excesses are frequently a patient's undoing.

The indications for a change of climate may include the removal of a source of infection from the home, the beneficial effect of a change of surroundings, the advantages to be derived from the climate in and of itself, and the possibility of greater comfort in taking the cure.

The treatment of pulmonary tuberculosis in accordance with the activity of the process implies either rest, good food, fresh air, or rest and exercise, good food, and fresh air as the primary measures of cure. Early in the cases of active pulmonary tuberculosis before the patient has developed sufficient resistance, I consider that the most important thing is "rest in bed out of doors with adequate nourishment." Secondary measures useful in any case of pulmonary tuberculosis are drugs, tuberculin, vaccines, lung compression and a change of climate.

The greatest obstacles to recovery from a tuberculous infection are the failure to secure an early diagnosis, and the failure to promptly apply the primary measures of cure; the most important of these is absolute rest. All incipient cases should be put to bed. The chief value of climate seems to be largely its stimulating effect and the beneficial stimulus of a change of environment. It also serves the purpose of making out-door life more agreeable.



The thing of supreme importance is the prompt institution of adequate treatment and its continuance under supervision for the necessary length of time.

(Doctor Moorehouse's paper will appear in full in the May issue of the Journal.)

S. L. Bernstein in opening the discussion, said that he was glad to hear Doctor Moorehouse so strongly emphasize the necessity of complete rest for the patient, absolute rest in bed is the prime essential in the treatment of pulmonary tuberculosis. He considered that the social and financial position of the patient should be taken into consideration when advising a change of climate. A protracted stay in another climate far removed from home alienates a patient from his friends and family, and frequently these patients do not care to return to their former home, even though there is no longer reason for their remaining, on account of their health in the climate where it was regained. The one great thing is to properly educate the patient as to the proper care and the treatment to which he must submit in order to make a recovery from the disease, and when we send a patient away he should be sent to a place where these things will be taught.

N. Rosewater said that he thought that the feeding of the tuberculous patient deserved more study than had been given it. The food should be kept at such quantity and of such quality that the patient must gain. He considered also that the surroundings of the patient deserved great attention.

George W. Moorehouse said, in closing, that the indiscriminate stuffing of patients was wrong. That the diet should be watched and so arranged that the patient was kept on the gain until he had regained his weight and then diet should be reduced.

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## OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The seventieth meeting of this Section was held at the Cleveland Medical Library on Friday evening, February 27th, 1914.

S. S. Quittner presented a child of nine with sloughing of the soft palate and uvula. Gave history of having had scarlatina and sore throat six months ago. Wasserman of child and mother positive. So called scarlatina may have been early luetic rash.

W. P. Chamberlain saw a case of a child of seven, with syphilitic lesions of naso-pharynx, vomer and sphenoid. Wasserman positive. History negative.

Edw. Lauder presented a case of steel in the orbit. Patient's eye looked normal except for a scar in the sclera above the cornea. Vision reduced to light preception, but eye quiet. No view of the fundus. X-Ray plates presented, showed foreign body behind the ball and apparently within the optic nerve.

W. E. Bruner had a similar case in which steel passed through the eye ball into the orbit. The physician who had referred the case had pulled out a large part of the iris and ciliary body thinking it to be the foreign. On account of this trauma the eye had to be enucleated. In the case reported by Lauder he thought that if the foreign body really lay within the optic nerve there was some danger of sympathetic inflammation.

W. C. Tuckerman reported a case of atropin poisoning from installation into the eye. The patient was refracted by an optician, an accommodating physician having supplied the prescription for atropin. He called attention to the fact that in case of any complications in such a matter the responsibility lies with the physician.

Program of the evening:

**1 Deafness in Its Relation to Life, by Miss Grace E. Burton, Principal of the Cleveland Public School for the Deaf.**

The deaf child's future depends largely upon the character of the advice the physician offers the family as to its disposition. We are therefore asking that the physician tell the parents the truth concerning the condition of the child and advise its being placed immediately in some school for the deaf, where its education may be carried on systematically. This need not interfere with any treatment which may be considered advisable or necessary.

The child has everything to gain if the hearing does not return and nothing to lose if it does, through being in school.

Statistics show that about 40 per cent of the children are born deaf, 57 per cent become deaf through illness and 3 per cent through accident.

The education of the deaf, therefore, a broad question, involving the teaching of all people who have to any extent lost their hearing.

Children in the Cleveland school for the Deaf are placed in separate classes according to the following classification: 1 Slightly deaf; 2 Hard of hearing; 3 Total deafness after speech has been acquired; 4 Total deafness before speech has been acquired.

First two classes should receive more consideration. Should not be permitted to remain in hearing schools but should be placed in special classes in the deaf school where they may receive acoustic and lip-reading training and be fitted to return to the hearing schools. Any child not able to take the whisper test with back turned at ten feet should be placed in such a class.

Any child becoming deaf, after he has acquired speech by reason of scarlet fever, meningitis, accident or other cause must be placed in a school for the deaf immediately upon recovery from the illness which caused the deafness, else, up to ten years of age, he will lose his speech and become dumb. The speech can be retained almost perfectly through teaching the child lip-reading and he can be fitted in some instances, to take up his work with hearing children. It is impossible to educate these children in the hearing schools and no precious time should be wasted attempting it.

Children partially or slightly deaf will not lose any speech through entering an oral deaf school, their voices will not deteriorate nor will there be any loss of mental acumen. The instruction is given through speech alone in small classes of not more than ten children following the course of study of the public schools, and they invariably gain in correctness of speech, proficiency in language and greater ability to hear (if the hearing remains a fixed quantity).

The case of a congenitally deaf child presents a very different problem.

They have no other natural defect than that of deafness, and are capable of the highest mental development.

Speech is the mechanical adjustment of the vocal organs and when we teach deaf children the correct adjustments of the perfect organs they possess, they will speak.

Interpretation of facial images or lip-reading must be made to take the place of hearing.

The inestimable value of hearing in the physiological speech centers demonstrated by comparing the blind with the deaf. The blind have language, the congenitally deaf child not even the conception of a word.

The acquisition of speech, the power of understanding and uttering words coincident with large growth in intelligence and in fine discernments and duties and relations. The deaf live in a world where hearing is one of the fundamental conditions and they must be prepared to meet these conditions. We must approximate as nearly as possible a return to hearing society for them.



Night classes in public schools should be arranged for the adult deaf unable to pay for private instruction. Lip-reading is of inestimable value to this class of persons.

(Miss Burton's paper will appear in full in the May issue of *The Journal*).

Upon W. H. Tuckerman's inquiry Miss Burton stated that at present there is no provision in Cleveland for teaching the adult deaf or hard of hearing. Chicago has evening schools for the deaf.

W. P. Chamberlain refers all cases of defective hearing to Miss Burton as early as possible. She, however, is often too busy to give them attention.

There was at one time a competent teacher in the city who taught these patients, but it did not pay the year around. At present he is at a loss what to do.

J. C. Tuckerman thinks the adults can be taught to great advantage. His grandfather's hearing failed at 65. He taught himself lip reading, and was soon congratulated on the improvement of his hearing.

M. Metzenbaum gave an account of the excellent work done at our Cleveland school, as he observed it.

Miss Burton called attention to the fact that while the Medical Inspection of Schools has an oculist who places children with defective vision in a special school, there is no aurist who looks after defective hearing.

J. M. Ingersoll thinks that the Board of Education's attention should be called to this and suggested that Doctor Monson take up the work temporarily in addition with his eye work.

## 2 Treatment of Voice and Speech Defects, by Bernard Cadwallader.

Mr. Cadwallader gave a detailed account of the principles of his method. The majority of cases are readily curable but the teacher requires a knowledge of phonetics, normal speech and vocal music. The ordinary schools for stuttering aggravate the trouble. Physicians do not know how to treat the sufferer, and have no knowledge of where to send them for cure.

Stammering and stuttering do not result from nervousness, but vice versa.

Patients are real sufferers, get little sympathy, are a detriment to normal pupils.

Nothing is done in our schools to help them.

J. H. Lowman asked how many children in our schools have speech defects. Is there any danger, if they are together, of their aggravating one another's condition by imitation?

Cadwallader said that Doctor Peterson estimated that there are at least 500 (possibly as many as a 1000) such children in our public schools.

The danger of mimicry is for the normal child. Segregation in small graded classes would solve the problem. For adults individual lessons are necessary.

I. J. Kerr had a case of a child of six, thought to be feeble-minded and was to be sent to Columbus. It was purely a case of defective speech. Taught by Mr. Cadwallader, made remarkable progress and was able to keep up in school with other children of the same age.

W. P. Chamberlin said that the United States is the only civilized country in the world which does not care for speech defectives at public expense. About 2 per cent of all school children have some degree of speech defect.

The children should be removed from the others not only for their own benefit, but also to avoid contaminating the others.

A vote of thanks was given to Miss Burton and Mr. Cadwallader for the papers presented.

**CLINICAL AND PATHOLOGICAL SECTION**

The one hundredth regular meeting of this section was held Friday, March 6, 1914, in conjunction with the Lakeside Hospital Medical Society, the Chairman, H. N. Cole, in the chair.

The regular program was as follows:

**1 Presentation of a Case of Complete Obstruction of the Common Bile Duct with Biliary Cirrhosis, by Julian Gammon.**

The patient, a male, Hungarian, aged 48, had been in the hospital for a month, his illness antedating his admission by approximately one month. He was very weak, emaciated, and had loss of appetite. He had no fever, was markedly jaundiced and complained of some pain in the abdomen. The liver was enlarged being palpable three fingers breadth below the costal margin at the mid clavicular line. The margin of the liver was sharp and the surface was very hard and irregular. A large mass was palpable in the region of the gall bladder, the size of which diminished on palpation. This it was thought was the gall bladder.

The stools were clay colored and gave no test for bile pigments or their derivatives. The urine likewise was negative. Commercial ox bile was administered but no positive tests were obtained.

**2 Report of a Case of Appendicitis with Intussusception in a Child, with Radiographs, by T. S. Jackson.**

The patient was a girl aged 18 months. Six months prior to her entrance into the hospital, she had been operated upon for intussusception. Just prior to her entrance she had an attack of abdominal pain. Her bowels had moved just before entering the house. Examination showed tenderness and muscular rigidity in the lower right quadrant of the abdomen. There was no vomiting, chills or fever.

At the operation a McBurney incision was made over the right iliac fossa. There was no free fluid. On drawing up the cecum, intussusception of the last part of the duodenum into the cecum was seen. The intussusception was easily shaken out. There were no adhesions and the gut was in good condition. Apparently there had not been a complete obstruction but a prolapse of the ileocecal valve and the surrounding ileum into the cecum. The appendix was not involved in this process and the surrounding gut was normal. The distal half of the appendix was dark red, swollen and very long, as long in fact as that in the average adult.

Appendectomy was performed and the mesoappendix fastened to the ileocecal valve. The remaining slight constriction where the intussusception had occurred was stitched together so that it could not slide into the intestine again.

G. W. Crile, in opening the discussion suggested that the intussusception might have been the result of spasmodic anti-peristaltic movements of the appendix.

**3 Presentation of a Case of Chancre of the Neck, by W. T. Corlett.**

Chancre of the neck is not so very unusual. In the present case the patient is married, his moral history is of the best and he is supposed to have received his infection at a barber shop where he made a habit of being shaved and having his hair cut. The most usual position for chancre, excluding the genital organs, is on the lip. When occurring on the lip, mouth or head they follow a rather severe course of the disease and in treatment with Salvarsan, small injections must be employed at first on account of the reaction.

**4 Presentation of a Case of Mycosis Fungoides, by W. T. Corlett.**

The patient, who has been suffering supposedly from eczema, has been troubled with itching skin for years. About four months ago several patches broke out on the skin one being situated on the temple. These cases simulate eczema and are seldom recognized.



The prognosis in such cases is extremely grave and the most successful line of treatment is by the Roentgen rays. The lesion on the temple is a beginning fungoid growth. Nothing has been found as yet to eliminate the itching. Neosalvarsan has been tried for this purpose.

Pathologically the growth is a granuloma. Mucus membranes are not involved by it. After the granulomata have formed the discomfort sometimes disappears.

H. N. Cole, in opening the discussion, said that these growths are often mistaken for sarcomata. They are not, however, but they metastasize and are fatal.

#### **5 Remarks on a Case of Post-Operative Interstitial Hernia, by C. E. Briggs.**

The patient was a woman whose immediate history dated from six years ago when she had an abscess in the right iliac fossa thought to have been of appendical origin and which was drained through an incision below the anterior superior spine and external to the linea semilunaris. Her convalescence was prolonged and on getting up she was conscious of an indefinite tumor formation in the right iliac fossa in the region of her operation; this kept gradually increasing in size until the present time. The mass was always hard, only slightly moveable, never showing any change in size except in its gradual increase, showing no change in consistency under varying conditions in the bowel movements, never reducible, and at no time thought to give any impulse on coughing. Aside from a life-long tendency to constipation there had never been any tendency toward disturbance of the bowel movements and at no time was there anything to suggest intestinal obstruction.

A longitudinal incision was made over the tumor in the line of the central portion of the right rectus muscle. After going through 4 cm. of abdominal fat, the inner side of the tumor was encountered and found to be a soft, fluctuating mass, tympanitic on percussion and unquestionably a hernia.

#### **5 A Case of Hypernephroma with Metastasis in the Chest Wall, by C. E. Briggs.**

There have been few cases of hypernephroma at Lakeside Hospital, and so far as the speaker has been able to learn, there has been no previous clinical instance of metastasis from such a tumor. The man presented was a Pole, aged 46. About six months ago the man was seen by a physician and was thought to have a tumor of the right chest wall, corresponding closely in location and physical character to the one about to be described. This tumor was said to have attained its size within three or four weeks and disappeared completely within two or three weeks under mercurial treatment. Early in January he was seen by one of the physicians at Lakeside Dispensary and was thought to have tuberculosis of the right kidney. There was a large fluctuating tumor in this region which together with signs in the lungs was thought to indicate tuberculosis.

The present tumor was situated in the left posterior axillary line about the level of the eighth rib about 6 cm. by 10 cm. in diameter. It was ovoid in shape, hard, smooth and not sensitive, flat on percussion and the skin over it freely moveable, the tumor itself being rather firmly, but not absolutely fixed to the tissues underneath. A small piece of tissue removed from the kidney tumor at a previous operation showed it to be a hypernephroma.

In spite of a number of contradictory statements regarding the history and the development of the case, it is felt that the connection between the kidney conditions and the tumor is established beyond a reasonable probability, that no attempt at removal should be made and that even removal of a portion of the tumor for examination does not seem altogether justifiable. The tumor would probably show a structure coming under the general conception of perithelioma or endothelioma,

which is the form generally thought to be shown by metastases from such new growths.

**6 Presentation of a Case of Temporo-Sphenoidal Abscess, Secondary to Chronic Suppurative Otitis Media-Operation, Recovery, Radiographs, by J. M. Ingersoll.**

The patient was a boy 14 years old. He had had chronic suppuration in the left ear for three years. Six days before entering the hospital he had fallen to the floor unconscious and had remained thus for several hours. After that he had repeated attacks of vomiting and complained of severe headache and some dizziness, purulent discharge from the left ear.

A radical mastoid operation was done, the cholesteotoma removed and as the sigmoid sinus had been exposed, over an area of about 2 cm. long and 1 cm. wide, by pressure necrosis from the cholesteotoma it was thought that this was enough, perhaps, to account for the symptoms of brain irritation.

For three days following the operation the patient improved. On the fourth day his temperature rose to 102, pulse 110, and he showed symptoms of beginning optic neuritis. A second operation was done immediately. The mastoid incision was opened, the dura exposed over the antrum and middle ear, incised and a brain knife inserted upwards and slightly backward for 3 cm. Several ounces of foul, thick pus were evacuated and the cavity lightly packed with iodoform gauze. The recovery was complete and uneventful.

(Doctor Ingersoll's paper will appear in May issue of this Journal.)

**7 Presentation of Two Cases of Milroy's Disease, by John Phillips.**

Case 1 Male, aged 40, admitted to the Dispensary of Western Reserve University, complaining of severe cough. Upon physical examination it was discovered that there was a well marked painless oedema of the left leg below the knee. Patient stated that this condition had been present since birth; had never caused any great inconvenience, save that at times the affected leg would become red, swollen, hot and very tender. During these acute attacks he would feel ill and feverish, and there would be some disturbance of the stomach. No cause could be assigned for these attacks, other than slight injuries. They subsided in 3 or 4 days. They had first appeared at the age of 10 years, and had occurred once or twice a year since. No other abnormalities were found upon examination.

Case II Boy, aged 6 years, son of Case I, was seen at same time as his father. His condition was similar to that of his father except that his right leg was affected; the left leg was normal. His mother had noticed this condition when the lad was 4 months old, and it had gradually increased and remained persistent since that time.

The boy had suffered no inconvenience from this condition until Oct. 13, 1913, when after a slight scratch on his right foot he developed in a few hours a red brawny swelling extending to the knee. This was very painful and tender to touch. The upper border was raised and sharply defined. Temperature 104°; severe nausea and vomiting. The pain, nausea and vomiting disappeared and the temperature returned to normal within 3 days. He has had no acute attacks since.

(Dr. Phillips' paper will appear in the May issue of *The Journal*.)

Doctor Marine asked in discussion if there was any demonstrable enlargement of the lymphatics in the affected limbs.

Other pointed questions were raised as to whether or not there were any facial signs, or nervous symptoms.

John Phillips, in conclusion, gave a negative answer to these questions.



**8 Presentation of a Case of Malignant Lues, by R. W. Scott.**

The patient, a young man had a hard chancre four years ago. Six months following its appearance he came to the dispensary for treatment. Vigorous mercury and potassium iodid treatment was begun and continued for three years. A saddle nose developed in the midst of the treatment, also a gumma of the right tibia. In addition he has perforation of the hard palate. The patient has had two injections of salvarsan, has been made toxic with mercury six times.

W. T. Corlett, in opening the discussion, said that the patient in question had been in bad physical condition and that not until lately had he taken systemic treatment. He was thought to be tuberculous. It was probably due to those factors that the disease got hold. The speaker said that he regarded this case as one due to neglect on the part of the patient.

**9 Presentation of Pathological Material, by C. W. Winn.****1 Lympho Sarcoma of the Sternum.**

The patient, a man aged 34, had suffered from shortness of breath and cardiac embarrassment for three months. At autopsy a large tumor mass was found in the mediastinal space. There was marked infiltration of the pleura and sternum and the muscular and subcutaneous structures were involved. The tumor mass showed direct exgention into the lung tissue.

The trachea was almost closed by the growth while the esophagus was comparatively free. The heart had been displaced outward and downward. The pericardium was infiltrated with tumor cells but the pericardial cavity was not encroached upon. The mesentary and axillary glands were involved. The tumor was a lympho-sarcoma. It is likely that one of the mesenteric glands was the primary seat.

**2 Congenital Syphilis.**

The material was from a boy aged seven. He had always been weak and his heart was filled with murmurs. He died with acute lobar pneumonia. The pericardium was tightly adherent and the heart showed double aneurysmal dilatation extending over the left ventricle and around the right auricle.

C. F. Hoover in discussing the first case said that two findings in the patient pointed to mediastinal tumor. The first of these was the perfectly symmetrical movements of the sub-costal angles and the second the fact that the axillary glands were palpable. Both costal margins moved symmetrically toward the median line and this pointed to the presence of a tumor mass.

The absence of the tracheal tone in large mediastinal tumors is also significant. The tumor when removed in the above case was found to be ten inches in length.

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**EXPERIMENTAL MEDICINE SECTION**

The seventy-fourth regular meeting of this section was held at the Cleveland Medical Library, Friday, March 13, 1914, the Chairman, David Marine, in the chair.

The program was as follows:

**1 The Contribution of Playgrounds to Public Health, by E. A. Peterson.**

After strenuous efforts on the part of the best physicians much emphasis has come to be laid on the prevention of disease. Insistance on this point has given rise to many movements the object of which is to care for people when well, so that when bacteria infect them, they are able to stave off the infection. If a program could be developed embodying the fundamentals of our old environment in savage times, it would meet the above requirements in an ideal way.

Every person should get sufficient physical exercise. This is an essential. Two hours per day of mild physical exercise in the open is a fair average to keep one in good physical condition. The speaker said that for fifteen years his duties were to see that a certain number of persons got exercise. When he quit this work, however, he quit exercising. This is the common experience. One can not force one's self to indulge in exercise per se.

We were created out of a very active environment. Our physical development shows this as do also our muscular, nervous and vascular systems. In the beginning the chase was man's chief activity. From this he graduated into agriculture. Had we developed as slowly since leaving the agricultural state as we did before reaching it, we might have been able to compensate for the lack of exercise. As it is, however, in less than one hundred years, we have changed our environment and from agriculturists have become city dwellers. All of the present-day movements referred to have as their common purpose, the effort to bring back into our lives the factor of physical exercise which we have lost in a series of environmental evolutions.

Physical education is one of these movements. Starting in Germany and Sweden, the founders of the movement worked on the premise that the body is a machine, and that big muscles should be the end in view. As a result of these movements we have developed splendid gymnastic apparatus which we do not use. The playground movement is more promising, however, for it is training our children in a more active life and these children will some day be adults.

We hear much of the deterioration of the race. Physical deterioration is a part of this. We cannot force ourselves to exercise. The solution lies in socializing our efforts. It is far better for a boy to become interested in golf or tennis than in dumb bells, for his interest in the former will endure. The playground is doing just these things. They are teaching exercises which give mental rest and physical exercise. Playgrounds establish habits which will take us out into the sunshine. A playground, in other words is a place where fundamental instincts take root, to function throughout the remainder of life.

Play and work differ largely, only in one's mind. Work if properly regarded may be play. It is far better to teach a child gardening than baseball, since the former makes for much more outdoor exercise in the future. We should train ourselves to like certain things calling for physical activity. It makes for health and efficiency. Muscles and mind must work together. Playgrounds call out physical activity pleasant to the mind and beneficial to the body.

The playground reconstructs the fundamentals of man's old environment. It forms habits of activity, which are fun—not medicine. We do these exercises because we want to and thereby derive much benefit.

W. H. Tuckerman, in opening the discussion, said that gymnasium work had been criticised severely because while it made good athletes of men while in college, after leaving such institutions they drop it, become entirely sedentary in their habits and lose interest in things athletic. The playground is a vital institution. Instruction there is not imposed as a task. Students instructed in botany get more out of it than if instructed in athletics, since they will retain their interest in the former in later life and will derive much benefit mental and physical, from working with it.

E. A. Peterson, in closing, said that walking which is commonly prescribed as exercise by physicians, becomes too irksome to the individual concerned to be pleasant and profitable. In many cases a sick man sent into the woods on short rations, would naturally return to the habits of that environment and would cure himself.



## 2 The Sediment Test in Milk, by H. O. Way, M. S.

Most methods in vogue for the determination of the amount of dirt in milk have been based on the determination of the weight of the dirt in a known quantity of milk. More recently, however, there has been developed a method of filtering milk samples through small discs of absorbent cotton without attempting, necessarily to determine the weight of the sediment. On removal from the filter the cotton discs containing the sediment are placed on a white sheet of paper opposite the serial number of the specimen. They readily adhere to the paper on drying\* and as the amount of sediment can be readily observed, are graded by the use of the numerals 1, 2, 3, and 4.

Such a method as that just described is used at the local chemical laboratory of the Board of Health. As the amount of dirt present in milk by no means runs parallel with the bacterial count it is readily seen that chemical examination in general and the above graphic method in particular offer a valuable means for determination of milks which from a standpoint of dirt should be excluded from consumption.

Both the shipper and the city dealer are held accountable for the presence of dirt in milk. The graphic method allows the cotton discs to be preserved indefinitely and both shippers and dealers can be shown at a glance the relative amount of dirt in their milk. The fact that the amount of dirt can be so readily ascertained and graphically represented has had a very salutary effect on shippers of, and dealers in, unclean milk.

W. T. Howard, in opening the discussion, gave as his opinion that the above is perhaps the most valuable of all the graphic methods in vogue in any line of work. It gets results both with milkmen and with the courts.

W. C. Tuckerman, in discussion, made the point that irrespective of temperature, relative to straining milk there are two questions:—1 Relative to how much added dirt has gotten into the milk during the process of straining and, 2 Relative to how much has been gotten out by the process of straining. Some producers have good strainers but let added dirt get in during the process. Others have inefficient strainers but are particular about preventing added dirt from getting in. The question of dry and wet methods of milking also comes in.

R. G. Perkins, closing the discussion in the absence of H. O. Way, said that authorities do not particularly object to the producer straining his milk since in a large proportion of the cases the particles are covered with bacteria. The bacteria increase in proportion to the temperature and also in proportion to the amount of dirt present. Producers are not yet taking precautions from a moral standpoint, but nevertheless they are more careful than formerly, which is a valuable advance.

## 3 Diphtheria Carriers, by M. J. Miller.

The diphtheria carrier problem is becoming more complex each year, possibly due to more elaborate laboratory methods and perhaps to a real increase, both numerical and proportionate. The increasing discomfort to the public has brought into the field various methods of ridding the throats of offenders.

The routine administration of antitoxin as a prophylactic measure, while serving its purpose of immunizing the patient who receives it has nevertheless, at least in a number of cases, converted these patients into carriers of the disease.

After a number of experiments carried out under the supervision of the writer, the following conclusions have been reached:

1 As yet we have no encouraging means of freeing carriers of diphtheria bacilli.

2 The use of antitoxin ought to be restricted to cases of absolute indication—both as to cure and prevention. Routine administration to prevent the occurrence of diphtheria where none exists should be discouraged save perhaps single doses to other members of a family.

3 Antitoxin does not always prevent diphtheria and should not be

used as a panacea for all ills pertaining to diphtheria. We cannot help but feel that here again the prevention of the spread of disease is more or less sacrificed for the cure.

It is also interesting to note that contact is necessary for infection by the disease. Also the taking of two negative cultures does not assure that the person is not, or may not, become a diphtheria carrier.

J. J. Thomas, in opening the discussion, said that it is of practical interest to the practitioner, to know whether all cases of diphtheria are contact cases. If they can be transmitted to a third party, then, the physician might serve as a carrier. In regard to negative cultures, if two such findings are not conclusive it is doubtful whether three or six would be.

#### 4 Whooping Cough, Measles, Scarlet Fever and Diphtheria in Cleveland in 1913, by Members of the Third Year Class in Hygiene, W. R. U. Medical Dept.

Owing to the fact that all the above material deals with a mass of statistics and data, no mention is made of it in this column. A detailed report of it will be published in full in a later issue.

### VETERINARY SECTION

Report of the meeting held March 26th, by Joseph V. Prucha, Secretary.

That rabies is a specific disease has long been accepted by people of average intelligence. Too many times have the daily papers painted in graphic language the death of a human being from that disease. Their usual exaggeration was none too strong to picture the actual truth. The terrible fact remains that the symptoms herald certain death. There is no cure for one infected with rabies when once the symptoms begin to appear, and since a dog infected with rabies may impart the disease several days before his own rabid symptoms appear, it is evident that a bite of any dog is like the sword of Damocles, ever threatening, until we find the dog to be free of the disease or a given period of time has expired.

Doctor A. C. Hart, in a paper given before the Veterinary Section, gave the following report of work done on rabies by the Department of Health during the past year:

#### Dogs

Dogs quarantined at hospital for seven days.....	653
Dogs " " owners' home .....	41
Dogs " " hospital for ninety days.....	2
Dogs destroyed after being quarantined.....	161
Dogs destroyed after having been exposed to rabies.....	29
Dogs taken to laboratory for examination.....	43
Dogs not located .....	37
Dogs with positive rabies.....	44
Persons bitten by rabid dog.....	63
Letters given for Pasteur treatment.....	63

#### Cats

Cats quarantined at hospital.....	3
Cats destroyed after being quarantined.....	1
Cats destroyed having been exposed to rabies.....	1
Cats taken to laboratory .....	2
Cats not located .....	1
Positive cases of rabies in cats.....	2
Persons bitten by rabid cats.....	6
Letters given for Pasteur treatment.....	6

#### Horses

Horses quarantined .....	2
Positive cases of rabies in horses.....	2
Horses known to have been bitten by rabid dog.....	1

Total number of rabies' investigations.....859



To show the efficacy of the Pasteur treatment for rabies Doctor Hart cites two cases, both bitten by the same dog; one person ignored the advice for treatment and died, the other was saved by taking the treatment. Of the sixty-nine people which were given letters to take free treatment, having been bitten by rabid dogs no ill effects have been reported.

The vagrant dog has as much liberty under Cleveland's New Charter as he ever had, although he may not be classed under the Civil Service. It seems that even taxes which are so stringently placed upon everything else are illegal on the dog. During tax season the dog is an orphan. Nobody knows to whom he belongs. He will probably be classed like the segregated district, as a necessary evil.

At the same meeting a paper was given by Doctor Redhead on Mammitis and brought out a strong discussion. It was concluded that the chief preventive was the frequent and thorough removal of milk. The treatment is tireless massage with the same measures as for prevention. It has been found that Mammitis exists less frequently in dairies where milking is carried on three times daily than in those milked only twice daily.

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### COUNCIL MEETING

At a meeting of the Council of the Academy of Medicine held Wednesday, March 11, 1914, at the Bismarck, the following members were present: The President, J. J. Thomas, in the chair; Doctors Marine, Storey, Yarian, Skeel, Weir, Lueke, Kopfstein, Sanford, Ford, Gallagher and J. R. Tuckerman, and by invitation, J. D. Jones.

The minutes of the last meeting were read and approved.

On motion the following applicants were elected to Active Membership; Fred Aeberli, Donald B. Lowe, David Selman, Thomas P. Shupe, Morris Wirtshafter, Isadore Zwick.

The application of J. A. Hunter was acted upon unfavorably.

On motion the names of the following applicants for Active Membership were ordered published: Emil M. Brudno, James A. Cross, Robert L. Thomas.

A. S. Storey asked to appoint Frederick C. Herrick a member of the Civic Committee, leaving one vacancy to be appointed later. On motion the appointment was approved.

Miss Stone's communication was referred to the Chairman of the Program Committee for reply.

A communication from the Chamber of Commerce regarding a proposed Tenement Code was referred to the Civic Committee.

The Committee on a Physicians' Telephone Exchange was continued.

The renewal of the bond of the Secretary-Treasurer was approved.

H. L. Sanford desired that a committee be appointed to formulate, if possible, some feasible plan for providing for a medical certificate of health, prior to the issuance of marriage license. On motion Doctor Storey was requested to add Doctor Sanford to his committee as chairman of a sub-committee to make a study of the feasibility and if it seemed wise to suggest a plan which would be operable. Carried.

Doctor Lueke said that it had come to his attention that nurses from the Babies' Dispensary objected to private physicians taking charge of children that had been to the dispensary. The matter was referred to the Civic Committee with a request for definite data.

Doctor J. D. Jones, by request, asked that the interpretation of the narcotic bill be referred to the Legislative Committee for a statement of its bearing upon physicians prescribing to habitues. Carried.

## ROSTER OF OFFICERS AND MEMBERS OF THE ACADEMY OF MEDICINE OF CLEVELAND FOR 1914

The list published below includes only those whose dues were received by the Secretary-Treasurer up to March 19th. Errors in name or address should be reported to J. E. Tuckerman, 733 Osborn Building, at once to aid in prompt correction.

This list as published constitutes the mailing list of The Journal, and any active member failing to receive his Journal is requested to write for a copy. No name has been intentionally omitted. If your name does not appear, kindly notify the Secretary.

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J. J. THOMAS, M. D., 1914

##### First Vice-President

R. H. BIRGE, M. D., 1914

##### Second Vice-President

W. H. WEIR, M. D., 1914

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H. L. SANFORD, M. D., 1913

J. V. GALLAGHER, M. D., 1912

##### Secretary-Treasurer

J. E. TUCKERMAN, M. D., 1912, 1913, 1914

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##### Chairmen of Standing Committees

C. E. FORD, M. D., Legislative

R. G. PERKINS, M. D., Public Health

ALVIN S. STOREY, M. D., Civic

F. T. KOPFSTEIN, M. D., Membership

WILLARD C. STONER, M. D., Program

##### Trustees

A. F. SPURNEY, M. D., 1912-1913-1914

R. K. UPDEGRAFF, M. D., 1912-1913-1914

G. E. FOLLANSBEE, M. D., 1913-1914, 1915

N. C. YARIAN, M. D., 1913-1914-1915

R. E. SKEEL, M. D., 1914-1915-1916

E. O. HOUCK, M. D., 1914-1915-1916

### Standing Committees

#### Legislative Committee

C. E. FORD, M. D.

R. E. SKEEL, M. D.

S. W. EDDY, V. S.

Two appointments held open for special work,  
by permission of the Council.

#### Committee on Public Health

R. G. PERKINS, M. D.

G. M. MORRILL, M. D.

J. C. PLACAK, M. D.

C. H. LENHART, M. D.

E. F. ROMIG, M. D.



# Standing Committees—Continued

## Civic Committee

ALVIN S. STOREY, M. D.  
FREDERICK C. HERRICK, M. D.  
H. L. SANFORD, M. D.

## Membership Committee

F. T. KOPFSTEIN, M. D.  
J. L. BUBIS, M. D.  
WM. LANDGREBE, M. D.  
A. J. PEARSE, M. D.  
S. J. WEBSTER, M. D.

Two appointments held open to be filled later,  
by permission of the Council.

## Program Committee

WILLARD C. STONER, M. D.  
H. O. RUH, M. D.  
H. N. COLE, M. D.  
LEO WOLFENSTEIN, M. D.  
JOS. V. PRUCHA, V. S.  
J. E. TUCKERMAN, M. D.

# Vice Chairmen of Sections

C. W. STONE, M. D., Clinical and Pathological  
J. D. PILCHER, M. D., Experimental Medicine

# Secretaries of Sections

H. O. RUH, M. D., Clinical and Pathological  
H. N. COLE, M. D., Experimental Medicine  
LEO WOLFENSTEIN, M. D., Ophthalmological  
and Oto-Laryngological  
JOS. V. PRUCHA, M. D., Veterinary

# Honorary Members

Cabot, Richard C.....190 Marlboro St., Boston, Mass.  
Hanna, H. M.....2417 Prospect Ave., Cleveland, O.  
Moorehouse, G. W.....1110 Euclid Ave., Cleveland, O.  
Moynihan, B. G.....Leeds, England  
Ochsner, A. J.....713 Sedgwick St., Chicago, Ill.  
Ravenal, M. P.....University of Wisconsin,  
Madison, Wis.

# Non-Active Members

Dutton, C. F.....4816 Franklin Ave., Cleveland, O.

# Active Members

Abbott, William J.....	The Lennox Bldg.	Bernstein, S. L.....	The Lennox Bldg.
Adams, Thomas.....	5018 Broadway Ave.	Bigelow, O. P.....	8307 Superior Ave.
Aeberli, Fred.....	8514 Wade Park Ave.	Bigger, H. F., Jr.....	1110 Euclid Ave.
Albi, Charles J.....	4962 Broadway Ave.	Bill, Arthur H.....	1021 Prospect Ave.
Albi, Michael A.....	5074 Broadway Ave.	Birge, R. H.....	1021 Prospect Ave.
Allen, Dudley P.....	8811 Euclid Ave.	Bishop, R. H., Jr.....	The Rose Bldg.
Allen, Fred Y.....	3819 Cedar Ave.	Biskind, I. J.....	2350 E. 55th St.
Anderson, John.....	2431 E. 83rd St.	Black, C. A.....	8451 Broadway Ave.
Austin, J. Brouner.....	10406 Euclid Ave.	Black, Davidson.....	W. R. U. Medical College
		Bliss H. C.....	2705 Woodland Ave.
Bachman, U. M.....	1683 E. 82nd St.	Bondy, E. R.....	746 Euclid Ave.
Bailey, Robt. T.....	1542 E. 55th St.	Borts, M.....	9733 Logan Court
Baker, L. K.....	The Lennox Bldg.	Bourn, E. L.....	Brecksville, Ohio
Banker, N. S.....	E. 105th & Superior Ave.	Bowden, David P.....	Leader-News Bldg.
Barger, William T.....	Orlando, Fla.	Boyd, W. R.....	2210 E. 105th St.
Barricelli, G. A.....	The Rose Bldg.	Brainard, H. C.....	5152 Superior Ave.
Bauman, George I.....	1021 Prospect Ave.	Breck, Theo. B.....	653 E. 105th St.
Baumol, S.....	3203 Superior Ave.	Brelsford, H. H.....	The Rose Bldg.
Becker, H. A.....	The Lennox Bldg.	Bretz, I. S.....	1762 E. 65th St.
Balkowsky, I. M.....	2291 E. 55th St.	Briggs, C. E.....	The Lennox Bldg.
Belt, J. H.....	Indianola, Fla.	Brody, Myer.....	E. 37th & Woodland Ave.
Benner, Wallace J.....	16803 Detroit Ave.	Brokaw, Wm. F.....	2102 E. 55th St.

## Active Members—Continued

Bennett, G. U.	5711 Lexington Ave.	Friend, John M.	2803 Walton Ave.
Berkes, H. A.	1311 E. 85th St.	Fritch, J. C.	W. 25th St. & Bridge Ave.
Brooks, E. R.	2152 E. 99th St.	Fry, R. D.	The Rose Bldg.
Bruening, A. H.	2838 W. 25th St.	Fullerton, Wm. D.,	447 W. 59th St., New York City
Bruner, Wm. E.	New England Bldg.	Furrer, A. F.	1110 Euclid Ave.
Bubis, Jacob L.	5110 Seovill Ave.		
Buel, J. J.	Lorain Ave. & W. 25th St.	Gallagher, J. V.	The Lennox Bldg.
Buffett, G. P.	811 Jefferson Ave.	Gamble, John K.	1302 E. 84th St.
Bunts, Frank E.	1021 Prospect Ave.	Garber, M.	6204 St. Clair Ave.
Burdick, H. J.	4415 Cedar Ave.	Geib, F. J.	1021 Prospect Ave.
Burke, T. A.	The Rose Bldg.	Gernhard, W. E.	1942 W. 65th St.
		Gerstenberger, H. J.	1021 Prospect Ave.
Calkins, T. J.	8912 Superior Ave.	Gittlesohn, R.	4005 Woodland Ave.
Campbell, A. D.	7503 Superior Ave.	Glass, Geo. F.	13491 Euclid Ave.
Carey, M. J.	1952 E. 105th St.	Goldfinger, J.	The Rose Bldg.
Carlisle, I. C.	720 E. 105th St.	Goodman, I. J.	2050 W. 25th St.
Carlton, S. E.	3316 Broadway Rd.	Goodwin, E. M.	10403 St. Clair Ave.
Carothers, C. J.	2047 E. 9th St.	Graber, C. Lee	15703 Detroit Ave.
Carpenter, M. W.	The Rose Bldg.	Gregory, Wm. M.	75 Bridge St., Berea, O.
Casto, Frank M.	The Rose Bldg.	Grossman, Jos. H.	2196 E. 81st St.
Cerri, Nicola	418 Superior Bldg.	Gunsolly, W. N.	2084 E. 46th St.
Chamberlain, Webb P.	7405 Detroit Ave.		
Chamberlin, Wm. B.	1021 Prospect Ave.	Haefele, G. L.	1520 Clark Ave.
Chambers, William	1521 E. 82nd St.	Hain, C. O.	2767 W. 25th St.
Cheetham, Arthur M.	13010 Miles Ave.	Haldy, W. A.	Schofield Bldg.
Childs, L. W.	The Rose Bldg.	Hall, C. A.	1021 Prospect Ave.
Chisholm, Horatio F.	1120 Euclid Ave.	Hamann, C. A.	1021 Prospect Ave.
Civins, Albert I.	E. 55th St. & Woodland Ave.	Hammond, A. P.	7412 Woodland Ave.
Clark, Chas. H.	Cleveland State Hospital	Handerson, H. E.	1924 E. 66th St.
Clark, F. S.	The Rose Bldg.	Hannum, E. A.	The Rose Bldg.
Clark, Wm.	7803 Cedar Ave.	Hannum, Eugene S.	W. 51st St. & Clark Ave.
Cogan, J. E.	The Rose Bldg.	Hanson, D. S.	3290 E. 55th St.
Cohen, Arnold	Reserve Trust Bldg.	Harpster, C. I.	12302 Superior Ave.
Cohen, Samuel B.	E. 105th & Garfield Ave.	Hartzell, H. J.	9402 Madison Ave.
Cole, H. N.	2047 E. 9th St.	Haskins, Howard D.	W. R. U. Medical College
Colvin, B. B.	11214 Superior Ave.	Hastings, Kent K.	Rocky River, O.
Connell, A. E.	7113 Lexington Ave.	Hay, Charles H.	2004 W. 25th St.
Cook, A. J.	3323 E. 55th St.	Heidler, G. K.	7610 Kinsman Rd.
Cook, J. E.	New England Bldg.	Heimlich, D.	The Rose Bldg.
Coplan, M.	2054 Fulton Rd.	Hempstead, Helen	Euclid-Doan Bldg.
Coppedge, E. P.	4726 Superior Ave.	Henry, Arthur S.	2225 E. 82nd St.
Corlett W. T.	3618 Euclid Ave.	Herkner, Henry A.	928 E. 79th St.
Corrigan, F. P.	The Lennox Bldg.	Herrick, F. C.	The Lennox Bldg.
Costello, T. A.	E. 107th & Wade Park Ave.	Herrick, H. B.	Euclid Ave. & E. 105th St.
Cowgill, W. W.	8507 Wade Park Ave.	Herrick, Wm. H.	746 Euclid Ave.
Cox, Ernest H.	2047 E. 9th St.	Hickin, F. W.	14th St. & Clark Ave.
Crawford, C. C.	10312 St. Clair Ave.	Hill, Walter C.	1021 Prospect Ave.
Crile, Geo. W.	1021 Prospect Ave.	Hitchings, Frederic W.	10406 Euclid Ave.
Crowell, W. S.	1274 Main St.	Hobson, John F.	17618 Detroit Ave.
Crumrine, H. C.	1907 E. 69th St.	Hobson, Joseph F.	1721 Prospect Ave.
Cummer, Clyde L.	The Rose Bldg.	Hobson, Willis S.	1021 Prospect Ave.
Cutler, F. E.	The Rose Bldg.	Hole, Chas. M.	8920 Cedar Ave.
		Hoover, C. F.	The Rose Bldg.
Davidson, J. F.	3116 Cedar Ave.	Hosick, W. A.	10631 Euclid Ave.
Davis, H. L.	Schofield Bldg.	Houck, E. O.	4911 Franklin Ave.
Dexter, Richard	The Rose Bldg.	Howard, A. B.	The Rose Bldg.
Dial, Emory L.	8911 Lorain Ave.	Howard, W. T., Jr.	1838 E. 65th St.
Dickenson, J., Jr.	1021 Prospect Ave.	Howland, A. P.	2256 E. 55th St.
Difford, C. L.	Lorain Ave. & W. 65th St.	Humiston, W. H.	The Rose Bldg.
Didtrick, H.	1021 Prospect Ave.	Hutchins, Fannie C.	The Rose Bldg.
Doolittle, W. F.	9510 Euclid Ave.	Hyde, A. G.	Cleveland State Hospital
Droeg, Robert C.	United Bank Bldg.	Hyde, Wm. H.	8411 Clark Ave.
Drysdale, H. H.	The Rose Bldg.	Hyman, Jacob	11102 Superior Ave.
Dunn, J. J.	7604 Superior Ave.		
		Ingalls, Norman W.	W. R. U. Medical College
Ehret, G. A.	Schofield Bldg.	Ingersoll, J. M.	1021 Prospect Ave.
Elliott, R. W.	Euclid Ave. & E. 105th St.		
Engel, Rudolph C.	4607 Broadway Ave.	Jenkins, Alfred A.	1721 E. 55th St.
Englander, Simon	1021 Prospect Ave.	Jenkins, Henry	1845 E. 75th St.
Evans, Samuel W.	3229 E. 93rd St.	Jones, J. Arthur	The Rose Bldg.
Feil, Harold	2429 E. 55th St.	Jones, J. D.	7252 Broadway Ave.
Fisher, Ralph E.	The Rose Bldg.	Jones, Nathaniel M.	New England Bldg.
Flidner, G. B.	1821 W. 25th St.		
Follansbee, G. E.	New England Bldg.	Kaestlen, S. E.	2063 W. 26th St.
Ford, Clyde E.	1021 Prospect Ave.	Kahn, M.	The Rose, E. 55th & Central
Fox, John C.	14006 St. Clair Ave.	Kelker, H. C.	9856 Lorain Ave.
Francisci, M.	3242 Lorain Ave.	Kelley, S. W.	2255 E. 55th St.
Franke, F. C.	Woodland Ave. & E. 55th St.	Kennerdell, T. R.	3105 W. 25th St.
Fraser, J. M.	2515 E. 9th St.	Kerr, I. J.	New England Bldg.



# Active Members—Continued

Keyes, E. W.	1912 W. 65th St.	Nachtigall, B.	3093 W. 25th St.
Klaus, E.	1699 West 25th St.	Nash, A. C.	10502 St. Clair Ave.
Klaus, M. H.	4506 Lorain Ave.	Nelson, Chas. F.	Schofield Bldg.
Knowlton, L. G.	Warren Rd. & Detroit Ave.	Neuberger, John	1544 W. 25th St.
Kochmit, Matthew G.	4918 Broadway Ave.	Neuberger, Joseph A.	6424 St. Clair Ave.
Kofron, J. V.	5312 Broadway Ave.	Newcomb, R. B.	Soc. for Savings Bldg.
Kollar, Joseph B.	1846 E. 55th St.	Norton, F. B.	2164 E. 46th St.
Konrad-Filipiak, Frances	6827 Forman Ave.	Nungesser, J. J.	7216 Superior Ave.
Kopfstein, F. T.	8020 Superior Ave.	Nuss, John C.	5329 Fleet Ave.
Kotershall, J. J.	2841 W. 25th St.	Nuss, William	11636 Detroit Ave.
Krause, C. R.	1779 E. 89th St.	Ochs, K. E.	2407 St. Clair Ave.
Krebs, P. H.	2736 W. 25th St.	Ochsner, Rudolph J.	2091 E. 90th St.
Kurlander, J. J.	1859 E. 55th St.	O'Neill, Geo. M.	8715 Superior Ave.
Kurtz, Harry B.	The Rose Bldg.	Ormsby, H. B.	The Rose Bldg.
Kuta, F. J.	7326 Broadway Ave.	Osborn, Wm. O.	1021 Prospect Ave.
Ladd, L. W.	1021 Prospect Ave.	Osmond, J. D.	1021 Prospect Ave.
Laffer, Walter B.	The Rose Bldg.	Oster, L. W.	3408 Superior Ave.
Landgrebe, Wm. A.	10507 Superior Ave.	Oswald, B. Frank	11809 Detroit Ave., Lakewood
Lanzner, Albert H.	1432 Addison Rd., Cor. Wade Pk.	Parker, C. B.	The Rose Bldg.
Large, S. H.	The Rose Bldg.	Parsons, Willis T.	11712 Detroit Ave.
Latimer, Jay A.	10508 Superior Ave.	Paulin, N. O.	2028 E. 55th St.
Lauder, Edward	1021 Prospect Ave.	Pav, A. F.	2648 E. 55th St.
Lawrence, E. J.	Nottingham, O.	Pearse, Arthur J.	10427 St. Clair Ave.
Lee, H. J.	1925 E. 84th St.	Perkins, R. G.	W. R. U. Medical College
LeFevre, W. I.	The Lennox Bldg.	Perry, W. H.	The Rose Bldg.
Lemon, W. L.	1730 E. 27th St.	Peskind, A.	2414 E. 55th St.
Lenhart, C. H.	Cleveland Foundry Co.	Peskind, B.	2414 E. 55th St.
Lenker, John N.	1021 Prospect Ave.	Peskind, S.	2414 E. 55th St.
Leslie, Hugh J.	Hayden Ave. & Shaw St.	Peterka, Edward	5601 Broadway Ave.
Levenberg, B.	2314 E. 55th St.	Peterson, E. A.	Board of Education
Lewis, J. M.	The Rose Bldg.	Phillips, John	1021 Prospect Ave.
Lichty, M. J.	1803 E. 82nd St.	Pilcher, J. D.	12442 Auburndale Ave.
Lincoln, Wm. R.	The Lennox Bldg.	Pitkin, Carlos E.	688 E. 105th St.
Lind, Samuel C.	2803 Walton Ave.	Placak, Jos. C.	The Rose Bldg.
Lowe, Donald Blair	Health Dept., City Hall	Plannette, Herbert L.	8221 Superior Ave.
Lower, W. E.	1021 Prospect Ave.	Plent, J. B.	5634 Broadway Ave.
Lowman, J. H.	1807 Prospect Ave.	Pomeroy, L. A.	2047 E. 9th St.
Lucas, W. Harris	2004 W. 25th St.	Pope, Carlyle	1021 Prospect Ave.
Luck, Henry C.	The Rose Bldg.	Powell, E. A.	Schofield Bldg.
Lueke, A. W.	1870 E. 55th St.	Powell, H. H.	2714 Prospect Ave.
Lupeson, Hyman	2292 E. 55th St.	Prendergast, David	1426 Ridgewood Ave.
McAfee, Jas. D.	804 Broadway Ave.	Quayle, John H.	1110 Euclid Avenue
McGay, Norman P.	906 E. 105th St.	Quittner, Samuel S.	5512 Woodland Ave.
McGee, J. B.	8117 Woodland Ave.	Rasing, W. B.	1395 E. 9th St.
McHenry, Junius H.	1021 Prospect Ave.	Ravitz, Leonard	2295 E. 55th St.
McMichael, J. C.	10502 St. Clair Ave.	Rhodes, E. B.	13425 Euclid Ave.
McNamara, Francis X.	8908 Superior Ave.	Richards, Chas. E.	2507 Archwood Ave.
McPeck, E. E.	8303 Hough Ave.	Riegelhaupt, Samuel	2162 E. 55th St.
MacLachlan, John	3849 Prospect Ave.	Rieger, Walter H.	Leader-News Bldg.
Macleod, J. J. R.	W. R. U. Medical College	Rigelhaupt, Wm.	1814 W. 25th St.
Manley, R. M.	Schofield Bldg.	Riley, F. W.	942 Prospect
Manning, W. J.	W. 65th St. & Detroit Ave.	Riley, J. A.	2162 E. 86th St.
Marine, David	W. R. U. Medical College	Robb, Hunter	The Rose Bldg.
Martin, W. C.	1341 E. 110th St.	Rockwood, Harry L.	Detroit & Fry Ave., Lakew'd
Maschke, Alfred S.	1021 Prospect Ave.	Rogers, H. W.	New England Bldg.
Masenhimer, H. W.	The Lennox Bldg.	Romig, E. F.	13586 Euclid Ave.
Maska, John E.	2184 W. 14th St.	Rosenberg, E.	Woodland Ave. & 83rd St.
Medlin, W. A.	3316 W. 25th St.	Rosewater, N.	2429 E. 55th St.
Merriam, Walter H.	1021 Prospect Ave.	Roth, Frank	8623 Quincy Ave.
Merrick, W. E.	St. Clair & E. 117th St.	Rowland, V. C.	1021 Prospect Ave.
Metz, R. B.	1021 Prospect Ave.	Ruh, H. O.	2500 E. 35th St.
Metzenbaum, M. T.	The Rose Bldg.	Rust, E. G.	The Lennox Bldg.
Milani, Pio	2721 Woodland Ave.	Sanford, Henry L.	1021 Prospect Ave.
Miller, Amanda H.	2443 E. 55th St.	Sawyer, J. P.	The Rose Bldg.
Miller, Wm. T.	1110 Euclid Ave.	Schlesinger, Wm. A.	5409 Broadway Ave.
Milliken, B. L.	1110 Euclid Ave.	Schlink, Albert G.	8608 Hough Ave.
Miner, Irving C.	6035 Superior Ave.	Schott, Morris	1355 E. 55th St.
Mizer, Thos. J.	Lorain Ave. & Fulton Rd.	Scott, A. Clynton	6523 Euclid, Vickers Bldg.
Monaghan, E. P.	3372 E. 93rd St.	Scott, N. Stone	Citizens Bldg.
Monson, S. H.	The Lennox Bldg.	Scully, A. P.	2518 Detroit Ave.
Moore, J. M.	6726 St. Clair Ave.	Season, E. H.	10403 Euclid Ave.
Morgan, J. B.	7305 Lorain Ave.	Seidel, R. R.	Bedford, O.
Morrill, Gordon M.	2047 E. 9th St.	Selman, David	The Rose Bldg.
Morton, F. J.	4506 Lorain Ave.	Sexton, F. E.	5132 Superior Ave.
Munsie, James	1632 E. 65th St.		

**Active Members—Continued**

Shackleton, W. E.	1021 Prospect Ave.	Tierney, J. S.	The Lennox Bldg.
Sharp, Jay D.	8311 Euclid Ave.	Tims, W. A.	1488 E. 105th St.
Sharp, W. D.	1500 E. 105th St.	Todd, T. Wingate	W. R. U. Medical College
Sherman, H. G.	The Rose Bldg.	Towslee, Lillian G.	1021 Prospect Ave.
Shirey, O. M.	1021 Prospect Ave.	Tripp, Ira A.	1021 Prospect Ave.
Silbermann, Jacob	Woodland Ave. & E. 55th St.	Tuckerman, J. E.	1021 Prospect Ave.
Sill, R. H.	2510 Franklin Ave.	Tuckerman, W. C.	1021 Prospect Ave.
Skeel, A. J.	1834 E. 65th St.	Tuckerman, W. H.	1021 Prospect Ave.
Skeel, R. E.	1021 Prospect Ave.	Tupper, George B.	9704 Cedar Ave.
Sloan, Harry G.	1021 Prospect Ave.	Turrell, R. L.	1103 E. 79th St.
Smigel, P. S.	7211 Broadway Ave.		
Smith, C. W.	2069 Cornell Rd.	Upson, George D.	Leader-News Bldg.
Smith, D. B.	315 The Arcade		
Smith, George Seeley	1021 Prospect Ave.	Wagner, H. G.	The Rose Bldg.
Smith, J. T., Jr.	The Rose Bldg.	Wagner, L. H.	3056 Payne Ave.
Snow, Minabel	4614 Franklin Ave.	Wahl, H. R.	Lakeside Hospital
Sollman, Torald	W. R. U. Medical College	Ward, C. E.	2732 W. 14th St.
Soyer, George P.	1846 W. 25th St.	Warner, A. R.	Lakeside Hospital
Spencer, John G.	The Rose Bldg.	Warner, W. C.	1752 E. 89th St.
Spicer, D. M.	5412 Lorain Ave.	Weber, O. A.	1021 Prospect Ave.
Spitzig, B. L.	The Rose Bldg.	Weber, W. C.	The Rose Bldg.
Spurney, A. B.	2584 E. 55th St.	Webster, H. H.	4234 Pearl Rd.
Spurney, A. F.	1021 Prospect Ave.	Webster, S. J.	4234 Pearl Rd.
Staral, J. A.	The Rose Bldg.	Wedler, C. R.	4504 Superior Ave.
Stepp, Morris D.	Payne Ave. & E. 24th St.	Weir, William H.	1021 Prospect Ave.
Stern, Walter G.	Schofield Bldg.	Wells, J. H.	1858 E. 55th St.
Steuer, D. B.	3735 Woodland Ave.	West, K. S.	1110 Euclid Ave.
Steuer, Jos. C.	The Rose Bldg.	Wheelock, L. A.	12113 Euclid Ave.
Stevenson, G. W.	2196 E. 93rd St.	White, C. C.	1532 E. 55th St.
Stewart, Geo. N.	W. R. U. Medical College	Whitslar, W. H.	Schofield Bldg.
Stoeltzing, C. A.	759 E. 105th St.	Wickersham, J. W.	109 Charlotte Ave.
Stone, Chas. W.	The Rose Bldg.	Wille, Clarence W.	U. S. Marine Hospital
Stone, E. H.	5607 Euclid Ave.	Williams, C. D.	The Rose Bldg.
Stoner, Willard C.	1110 Euclid Ave.	Williams, T. B.	6403 Quincy Ave.
Storey, Alvin S.	7100 Detroit Ave.	Wirtshafter, Morris	3957 St. Clair Ave.
Stotter, James	The Lennox Bldg.	Witter, C. Orville	5415 Bridge Ave.
Stuart, Charles C.	The Lennox Bldg.	Wolfenstein, Leo	The Rose Bldg.
Suchy, F. H.	8613 Quincy Ave.	Wood, Frederick J.	W. 25th St. & Church Ave.
Sunkle, Robert H.	2107 Clark Ave.	Wood, J. S.	712 E. 152nd St.
Suva, John S.	2370 E. 87th St.	Woolgar, W. J. W.	9304 Cedar Ave.
Taft, Robert E.	9104 Union Avenue, S. E.	Yarian, Norman C.	7405 Detroit Ave.
Tarr, H. M.	1841 Euclid Ave.	Yoder, H. E.	8900 Lorain Ave.
Taylor, A. C.	13576 Euclid Ave.	Yoder, Ivan I.	W. 25th & Detroit Ave.
Taylor, T. J.	9410 Pierpont Ave.	Young, Samuel A.	4021 E. 71st St.
Thomas, Geo. F.	1021 Prospect Ave.	Young, T. C.	3524 E. 93rd St.
Thomas, J. J.	1110 Euclid Ave.		
Thomas, Oscar T.	1021 Prospect Ave.	Zimmer, Otto F.	4812 Clark Ave.
Thompson, Clive W.	E. 118th & St. Clair Ave.	Zwick, I.	5116 Woodland Ave.
Thornton, Wm. J.	11308 St. Clair Ave.		

**Non-Resident Members**

Andrews, Wm. B.	318 W. Main St., Kent, O.	Fraunfelter, F.	Canton, O.
Bauer, M. M.	Lake, O.	Gamble, R. V.	New London, O.
Bliss, C. B.	411 Columbus Ave., Sandusky, O.	Gill, George	Elyria, O.
Boyd, J. P.	500 Hamilton Bldg., Akron, O.		
Browning, Chas. H.	Oberlin, O.	Handler, Sigmund	924 S. Paul St., Rochester, N. Y.
		Hart, Wm. E.	Elyria, O.
Case, Clarence E.	Park & Center Sts., Ashtabula, O.	Hayford, H. S.	113 Prescott St., Toledo, O.
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Clark, Colin R.	415 Bryson St., Youngstown, O.	Hoover, Chas. S.	Alliance, O.
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**The Annual Meeting of the Ohio State Medical Association**  
will be held in Columbus on May 5, 6 and 7. Papers will be presented from the various sections under the direction of the following chairmen:

Medicine.....	Chairman, Richard Dexter, Cleveland
Surgery.....	Chairman, Joseph Rausohoff, Cincinnati
Obstetrics and Pediatrics.....	Chairman, George B. Booth, Toledo
Eye, Ear, Nose and Throat.....	Chairman, John E. Brown, Columbus
Dermatology, Genito-Urinary Surgery and Proctology.....	Chairman, George B. Evans, Dayton
Nervous and Mental Diseases.....	Chairman, C. S. McDougall, Athens

## BOOK REVIEWS

Practical Sanitation—A Handbook for Health Officers and Practitioners of Medicine. By Fletcher Gardner and James P. Simonds. Published by C. V. Mosby & Company. \$4.00.

As noted in the preface, this book is intended to fill a vacancy left by the more elaborate text books on the one hand and the treatises on separate subjects on the other. It is divided into three parts, in each of which the material is grouped so as to be readily accessible. After a discussion of general principles, in which definitions and instructions in isolation, quarantine, disinfection and the management of epidemics are clearly and succinctly given, the special diseases are taken up in groups. Inasmuch as the main purpose of the work is to facilitate prophylaxis, one may offer certain criticisms on this grouping. For instance, Malta fever, which is strictly dependent on the digestive tract as a portal of entry, and may, therefore, be guarded against like typhoid and dysentery, is not placed with these but with plague. Anthrax and glanders, contact, inhalation or less frequently ingestion diseases, and hydrophobia, an inoculation disease, are also placed with plague, on the basis that they are all related to animal diseases, although the plan of prophylaxis would have to be very different with each set. It is also open for discussion whether ophthalmia neonatorum, or gonorrhoeal ophthalmia should be placed under conjunctivitis, or under venereal diseases. Aside from this, the discussion of the etiology, prophylaxis and administration of the individual diseases is excellent, and up-to-date, save that the authors appear to cling to the old idea of the infectiousness of the scales in scarlet fever. The second division, dealing with General Sanitation, is simple and clear and covers all the essentials. The value of vital statistics as a basis for work, the importance of places where people are grouped together as factors in spread of disease and special forms of activity against carriers of disease such as the fly, the rat, and the mosquito are dealt with in an up-to-date manner. In contradistinction to the prevalent plan abroad, it is a comfort to see that the question of sewage disposal and of construction of water purification plants is considered as an engineering problem of great complexity which the Health Officer should not have to deal with save in that it is his duty on the basis of investigations and laboratory tests to urge that the water be made safe, and to insist that it be kept safe. The notes on sanitary privies are especially valuable for the great majority of our American cities which are a hodge podge of city and country conditions.

The third and last part deals with Laboratory Methods, and takes up mostly the administration side, as it is obvious that any one in charge of a diagnosis laboratory must have a more special training than can be given in any treatise of general type. One regrets that the article is so constantly used before technical names, e. g., the bacillus diphtheriae, and also the use of capitals for the second part of a binomial name, e. g., *B. Coli*, for which there is little excuse. It also seems a pity that any book on Public Health from any standpoint should not emphasize the necessity of having constantly accessible the weekly and other reports of the Federal Public Health Service, which with their discussions of pertinent health matters, their records of distribution of communicable disease and their summaries of new legislation, should be on the table of every health officer and every teacher of hygiene.

These criticisms are not made in any spirit of depreciation, but rather to show the belief of the reviewer that the book is so valuable that every weak point should be eliminated. The selection of what is to be said, and what is equally if not more important, the selection of what should be omitted, and the concise manner in which the information is arranged, make the book a very valuable one, which should be widely distributed. It should be of especial value to the Health Officer in small communities, who has neither funds nor time for the collection and consultation of a large library. The appendix relating to sanitary surveys is also of great



value in preventing omission of important etiological features. The illustrations are in the main well selected, and the proof correction has been carefully attended to  
R. G. P.

### ACKNOWLEDGEMENTS

**A Manual of Clinical Diagnosis by Means of Laboratory Methods.** For Students, Hospital Physicians, and Practitioners. By Charles E. Simon, M. D., Professor of Clinical Pathology and Experimental Medicine in the College of Physicians and Surgeons, Baltimore. Eighth edition, enlarged and thoroughly revised. Octavo, 809 pages, with 185 engravings and 25 plates. Cloth, \$5.00 net. Lea & Febiger, Philadelphia and New York, 1914.

**Medical Gynecology.** By S. Wyllis Bandler, M. D., Adjunct Professor of Diseases of Women, New York Post-Graduate Medical School and Hospital. Third thoroughly revised edition. Octavo of 790 pages, with 150 original illustrations. Philadelphia and London. W. B. Saunders Company, 1914. Cloth, \$5.00 net. Half Morocco, \$6.50 net.

**A Treatise on Diseases of the Skin.** For the use of advanced Students and Practitioners. By Henry W. Stelwagon, M. D., Ph. D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Seventh edition, thoroughly revised. Octavo of 1250 pages, with 334 text-illustrations, and 33 full-page colored and half-tone plates. Philadelphia and London. W. B. Saunders Company, 1914. Cloth, \$6.00 net. Half Morocco, \$7.50 net.

**Chemical Pathology.** Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. Gideon Wells, Ph. D., M. D., Professor of Pathology in the University of Chicago and in Rush Medical College, Chicago. Second Edition, thoroughly revised. Octavo of 616 pages. Philadelphia and London. W. B. Saunders Company, 1914. Cloth, \$3.25 net.

**The Principles of Pathologic Histology.** By Frank B. Mallory, M. D., Associate Professor of Pathology, Harvard Medical School and Pathologist to the Boston City Hospital. Octavo of 677 pages, with 497 figures containing 683 illustrations, 124 in colors. Philadelphia and London. W. B. Saunders Company, 1914. Cloth, \$5.50 net.

**The Practice of Pediatrics.** By Charles Gilmore Kerley, M. D., Professor of Diseases of Children, New York Polyclinic Medical School and Hospital. Octavo of 878 pages, 139 illustrations. Philadelphia and London. W. B. Saunders Company, 1914. Cloth, \$6.00 net. Half Morocco, \$7.50 net.

**State Board Questions and Answers.** By R. Max Goepp, M. D., Professor of Clinical Medicine at the Philadelphia Polyclinic. Third Edition Thoroughly Revised. Octavo volume of 717 pages. Philadelphia and London. W. B. Saunders, 1913. Cloth, \$4.00 net. Half Morocco, \$5.50 net.

**A Reference Handbook of The Medical Science, Vol. III.** Embracing the Entire Range of Scientific and Practical Medicine and Applied Science by Various Writers. First and Second Editions edited by Albert H. Buck, M. D. Third Edition Completely Revised and Rewritten. Edited by Thomas Lathrop Stedman, A. M., M. D. Complete in Eight Volumes. William Wood and Company, New York. Price, \$7.00 net. Cloth, \$8.00 net. Leather, \$9.00 net. Half Morocco.

**Pharmacology, Clinical and Experimental.** A Groundwork of Medical Treatment, Being a Textbook for Students and Physicians. By Doctor Hans H. Meyer, of Vienna, and Doctor R. Gottlieb, of Heidelberg, Professor of Pharmacology. Authorized Translation into English by John Taylor Halsey, M. D., Professor of Pharmacology, Therapeutics, and Clinical Medicine, Tulane University. With 65 Text Illustrations, 7 in color. Price, \$6.00. J. B. Lippincott Company.

**A Synopsis of Medical Treatment.** By George Cheever Shattuck, M. D., Assistant Physician to the Massachusetts General Hospital. Second Edition Revised and Enlarged. Price, \$1.25. W. M. Leonard, Boston, 1914.

**The Pathogenesis of Salvarsan Fatalities.** By Sanitäts-Rat, Doctor Wilhelm Wechselmann, Directing Physician of the Dermatological Department, Rudolph Virchow Hospital in Berlin. Authorized Translation by Clarence Martin, M. D., First Lieut. M. R. C. S. Army; Late Clinical Assistant St. Peter's Hospital for Stone and Other Urinary Diseases, London; Member Association Military Surgeons, Berlin Urological Society, etc. Price, \$1.50. The Fleming-Smith Company, St. Louis.

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**Examination of Candidates for Assistant Surgeon.**—Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street S. E., Washington, D. C., and at the Marine Hospitals of Boston, Mass., Stapleton, N. Y., Chicago, Ill., St. Louis, Mo., New Orleans, La., and San Francisco, Cal., on Monday, April 27, 1914, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two year's professional work.

Candidates must be not less than 5 feet, 4 inches, nor more than 6 feet, 2 inches, in height.

The following is the usual order of the examinations: 1 Physical; 2 Oral; 3 Written; 4 Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and that they will serve wherever assigned to duty.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists of examination in the various branches of medicine, surgery, and hygiene.

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Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments.

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Assistant surgeons receive \$2,000, passed assistant surgeons \$2,400, surgeons \$3,000, senior surgeons \$3,500, and assistant surgeon generals \$4,000 a year. When quarters are not provided, commutation at the rate of \$30, \$40, and \$50 a month, according to the grade, is allowed.

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The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."



# The Cleveland Medical Journal

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## EARLY TYPES OF MAN\*

By T. WINGATE TODD, F. R. C. S., The Anatomical Department, Western Reserve University Cleveland, Ohio.

After some twenty years of patient unrewarded search for human remains in the sands of the river Neckar near Mauer, a village six miles from Heidelberg, Professor Otto Schoetensack, of Heidelberg University, was informed in October, 1907, of the discovery by the workmen of a tremendous human mandible buried in the sand eighty feet below the surface. It must have been galling to Professor Schoetensack on his arrival to find that the mandible had been extracted from its resting-place and broken into two pieces. There is no doubt, however, as to its exact location. Nothing more of the skeleton was discovered, but the jaw can indicate a very great deal concerning its possessor—as Professor Keith puts it, “No single bone can tell more of the body to which it belonged than a mandible.”

The bones of many animals were also found embedded in the sand, and among these were remains of an ancient and now

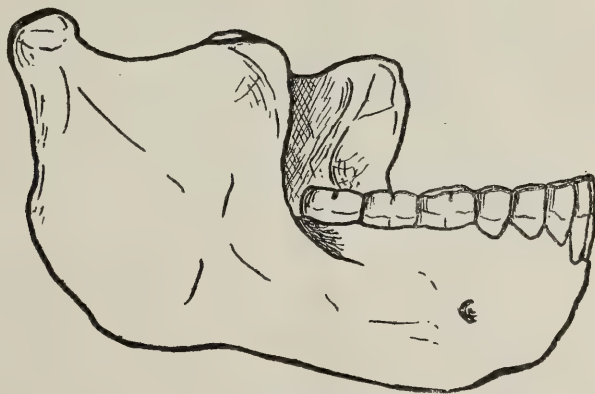


FIG. I.

Right side of Heidelberg (Mauer) mandible, one-half natural size.

Note the powerful ramus, the absence of the chin, the extensive dental arcade, the reduced canine and first premolar, and the large size of the last molar.

\*Containing the Substance of Museum Demonstrations on Human Palaeontology Delivered on February 26th and March 3rd, 1914.

The first and second lectures of this series appeared in *The Cleveland Medical Journal* for March and April, 1914.

extinct rhinoceros—*Rhinoceros Etruscus*—and an equally ancient and likewise extinct elephant—*Elephas Antiquus*. The latter animal was more primitive in form than the Mammoth, and indeed has been stated by Gaudry to be the ancestor of the Mammoth. *Elephas Antiquus* survived later than did *Rhinoceros Etruscus*, and still existed when the Mammoth lived. Remains of a third animal, a bear—*Ursus Arvernensis*—were also found near the mandible. Many other bones were discovered, but those of the three animals just mentioned are the most important. *Rhinoceros Etruscus* lived in late Pliocene times, *Ursus Arvernensis* survived into the Pleistocene, and *Elephas Antiquus* outlived the bear. The evidence brought forward by the existence of these bones is then that this Heidelberg man lived late in the Pliocene or early in the Pleistocene age. Probably the climate of his time was mild for *Elephas Antiquus* is associated as a rule with a more southern group of mammals than is the Mammoth.

The evidence of antiquity of Heidelberg man given by the accompanying mammalian bones is borne out by the appearance of the jaw itself, for it is more primitive in form than any other mandible we know except the recently discovered Piltdown specimen, to which reference will be made in a later demonstration. And even Piltdown man was probably of much later date than the Heidelberg, although many of his characteristics are even less like those of modern human beings.

In comparing the Heidelberg jaw with those of modern man and the Chimpanzee, one observes that the fossil specimen is of great size and very massive; it presents a large area for attachment of the muscles of mastication, and the chin is undeveloped. The horizontal limb or body of a mandible consists of two parts, an upper or alveolar portion, in which the teeth are implanted, and a lower or strengthening bar. The child at birth has practically only the alveolar portion; the lower strengthening bar develops with the eruption and growth of the teeth. In the Heidelberg specimen the dental arcade is greater than in modern man, and the lower strengthening bar does not project so far as the alveolar portion. Hence the mental symphysis is oblique, the bone receding below the incisor teeth. In modern man the dental arcade has become smaller and as the strengthening bar has not diminished in the same proportion, the chin becomes prominent.

Associated with the large grinding area of the teeth are



extensive surfaces for the attachment of the muscles of mastication. The vertical portion or ramus of the jaw presents an extensive outer aspect for the insertion of the masseter. As this surface is twice that of the corresponding area on a modern jaw, we must infer that the masseter of this ancient man was three or perhaps four times the bulk of our own. There is also a very large surface for the attachment of the temporal muscle, which means that the last named must have occupied a considerably

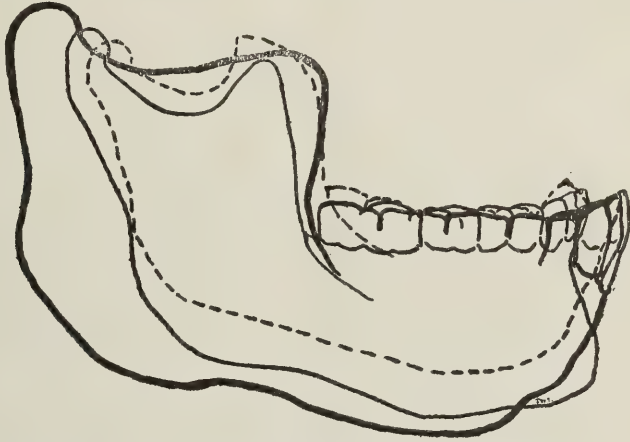


FIG. II.

Comparison between jaws of Chimpanzee, Heidelberg man and modern man.

The dotted line is the jaw of the Chimpanzee.

The fine line represents the outline of the jaw of a modern Austrian, aged 46.

The heavy line gives the outline of the Heidelberg mandible.

The jaws are superimposed so that the third molar on all three coincide.

Note the difference in area of ramus, the vertical height of the body of the mandible, the slope of the incisors, the size of the canines and the chin formation.

greater area of origin on the skull than does our temporal. The coronoid process is low and the sigmoid notch shallow. Too much weight must not, however, be given to these characters for, though primitive, they are found equally marked on some ancient Egyptian mandibles the date of which goes back only a very few thousand years. The condyle is not so sharply marked off by a neck from the ramus as is the condyle of a modern mandible.

Reverting to the body of the jaw, it is noticeable that the inner aspect is not so hollowed out as is that of present day jaws, and that the molars do not overhang the inner surface of the bone.

The mandible of the anthropoid ape is modified for mastication, but that of man has undergone changes to fit it for the reception of a tongue which can be freely moved in the floor of the mouth; a movement which must occur when speech is developed. The jaw differs from that of an anthropoid ape in being more hollowed and instead of presenting an excavation for the origin of muscles of the tongue (genio-glossi) this fossil jaw is provided, though not in so marked a manner as is our own, with

a prominence subdivided into two and named the genial tubercles. On the other hand the mandible shows the ape-like absence of the mylo-hyoid ridge to which the diaphragm of the mouth is attached. Immediately below the excavation the anthropoid mandible has a shelf-like piece of bone named the simian chinplate, which is wanting in the Heidelberg jaw and in ourselves. It may be that the development of speech preceded the morphological changes in the mandible and was actually the cause of these changes. Perhaps speech was only developed after a certain amount of hollowing had occurred in the jaw. At any rate there is no doubt that the occurrence of speech is intimately connected with the mandibular characters and hence we may infer that speech was developed in the Heidelberg man.

Among modern races the Eskimos have very powerful jaws, more powerful indeed than those of many men of the Glacial or Pleistocene period, but no Eskimo jaw ever approaches in size that of Heidelberg man.

The teeth of this fossil are large, but not so long as one would expect from the powerful nature of the mandible. Modern Australians, many Negro tribes, and even some Europeans present teeth as large or larger. The incisors are vertical, not oblique as are the corresponding teeth of the anthropoids. The canines are large but do not project beyond the other teeth as do those of apes. The premolars are vertical and the second is larger than the first. The molars collectively present a greater length of grinding surface by some 10 m.m. than do the molars of the majority of ourselves. As in most modern races of man, the last molar is somewhat less in grinding area than the other two.

The crowns of the molars are much worn, though the teeth themselves are not decayed. From the wearing of the molars and the reduction in size of the canines we know that mastication must have been performed in Heidelberg man in a similar way to ourselves. We know that this could not have been the case had the canines not been reduced. When one remembers that Heidelberg man lived in the late Pliocene or early Pleistocene period, one realizes the immense length of time which has elapsed since man first learned to chew in human fashion.

Inasmuch as the molars are so worn, we infer that the food eaten by this man must have been of a coarse and gritty nature.

The necks of the teeth are not comparatively small as in modern man, but almost as large as the crowns, and radiographic



pictures of the jaw show that the roots of the molars are fused somewhat and not separate as in modern man and anthropoids. This we would infer from the powerful muscular attachments. The teeth would need to be firmly implanted in the jaws to withstand the strain of these great muscles in action. Probably the partial fusion of the roots of the teeth was a specialization to afford resistance to the strain of mastication, which may have disappeared again as the chewing movements became less forceful. But it is likely that Heidelberg man represents the ancestor of a type named the Neanderthal race, which we shall discuss in the next demonstration; a race which long ago became extinct, and which also was provided with similar teeth. Hence, as neither Heidelberg nor Neanderthal man is on our own line of descent, it would seem inadvisable to conclude that this specialization disappeared again save with the extinction of the race.

In short, one may say that the teeth of Heidelberg man are too large to be those of a Chimpanzee, and have too short roots for those of an Orang. The smallness of the canine and the fact that the first premolar is smaller than the second eliminate the Gorilla and *Dryopithecus*.

The jaw is obviously that of a primitive man living at or just before the commencement of the Glacial period, and in whom mastication was fully established, but who probably had not the full power of speech which we have.

From the mandible we may gain some information concerning the rest of the skull. The palate must have been much more extensive than in ourselves, for it was both longer and wider. The arcade of the teeth presents the same appearance as in modern man, the two lines of teeth diverging as they proceed backward, and not converging as in the anthropoids. The chief feature of the skull, as indicated by the dental arcade, is its great absolute and relative width. This follows on the width of the palate, which itself is connected with the human mechanism of chewing. We know from the breadth of the ramus of the jaw what must have been the length of the zygoma, and from it we also glean information regarding the orbits. The distance apart of the condyles provides a basis for estimation of the breadth of the skull. From the massive character of the muscles of mastication, we know that the supra-orbital ridges and zygomata must have been well marked and prominent, and that the temporal ridges

must have been higher up on the side of the skull than in modern man.

To support so heavy a muzzle the head must have been firmly hafted to the neck, so that the neck muscles would have an extensive occipital attachment. The head must have been tilted backward to allow for the movements of the great jaw.

But when we come to consider the brain, we have to acknowledge that we cannot with any probability estimate its size. Arguing from the anthropoids, it has been usual to suppose that a small brain case is associated with a powerful mandible. But examination of Neanderthal crania has proved such argument to be fallacious. Although very different opinions are held regarding the size of the cranial cavity of Piltdown man, it seems possible that in him a massive mandible was associated with a moderate brain case. So that we must allow that Heidelberg man *may* have had a brain nearly as big as our own.

The question which naturally arises at this point of the discussion is, what relation, if any, does the Heidelberg jaw present



FIG. III.

Right side of Gibraltar skull, one-half natural size.

Note the low, flat cranial vault, the flattened occiput, the low, small temporal squama, the high temporal ridge, the large, overhanging supra-orbital arch, the large orbit, the very slight degree of prognathism, the short facial length, the sharp lower edge of the anterior nares, the filling of the nose with breccia, the vertical character of the incisors, and the reduced canine.

to the skull cap Pithecanthropus? Although these two finds are, geographically, so far apart, could they have belonged to individuals of the same type, or if not of the same type, may the



Heidelberg man have been the direct linear descendant of Pithecanthropus? We have seen that the Mauer jaw is that of a man. If it were appropriate to such cranium as that of Pithecanthropus, then the latter must have been a man also, as, indeed, most British anthropologists believe. It is said that the Heidelberg mandible is too massive for the Javan skull cap, yet so far as the teeth go, the comparison is certainly justifiable. We have no certain evidence concerning the relation of the geological strata in which the two were found, but even if we had, it would not be positive evidence one way or the other in the question before us. All we can say is that a jaw like that of Heidelberg man may have belonged to Pithecanthropus, and that the latter may actually have been a primitive human being instead of a creature intermediate between mankind and his anthropoid-like ancestors.

The other fossil which I desire to present in this demonstration is the Gibraltar skull, which was dug out of the lime-stone breccia in Forbes Quarry, Gibraltar, and presented to the Museum of the Gibraltar Scientific Society in 1848. After a series of adventures the skull came into the collection of the Royal College of Surgeons in Lincoln's Inn Fields, London, in 1868. Some considerable attention was paid to the skull between 1864 and 1882, but for twenty years after the latter date it fell again into obscurity, from which it has only recently been rescued. Nothing is known of the exact site of its location, and hence, beyond the fact that it was during the Pleistocene, nothing can be definitely ascertained regarding the period in which Gibraltar man lived.

It is interesting to note that whereas from the Mauer sands only the mandible was recovered, from the Gibraltar breccia only the skull was obtained. The Gibraltar skull differs from most other skulls of Neanderthal type in the perfect conditions of the bones of the face, and from all other similar skulls in the perfectness of the cranial base. Apparently the sand and lime-stone filled up every crevice of the skull and helped in its preservation. The nostrils are still filled with a mass of rock-like consistence.

The size of the skull and the roots of the teeth eliminate all known anthropoids living or extinct, save the Gorilla, and although the breadth of the nose and the manner in which it bends upward into the supra-orbital ridges, the size of the orbits and the capacious character of the maxillary sinuses suggest similarity with the skull of this ape, there are so many other definitely

human characteristics that there is no hesitation in assigning the skull to a primitive type of human being.

The skull differs from that of an anthropoid in the lack of fusion of the sutures, the backward compression of the muzzle, the short palate, the relatively small molar teeth, the reduced canines and the flattened occiput between the external occipital protuberance and the foramen magnum. But the primitive character of the skull is shown by both the cranium and the teeth. The bones of the former are one and a half times as thick as those of a modern European. This, however, is not to be given too much reliance, for the cranial bones of modern men vary greatly in thickness with age and with certain conditions such as alcoholism. Surer indices of the primitive nature of the skull are the low roof of the cranium and the flat cranial base. The capacity of the brain case has been estimated at 1100 c.c., which is much lower than that of modern Europeans. In the latter the cranial capacity equals an average of about 1500 c.c.

On examination of the teeth and their sockets, one notices that the necks are as big as, or bigger than the crowns. The roots of the molars have been fused. It may have been that the third molar was as large as the first, if one judge from the space occupied by its root sockets. All these characters have been shown already to be those of primitive man.

When the Gibraltar skull is compared with the Heidelberg mandible, it is found to be less prognathous than the latter, and the antero-postero length of the palate is much reduced; it is practically the same as that in modern man, although the breadth is as great as that of the Mauer jaw. Hence we must allow that however long or short an interval separated the periods during which these two individuals lived, the Gibraltar cranium illustrates a type in which the mastication apparatus had been reduced from that possessed by Heidelberg man to a condition more nearly modern.

The sex of the skull is uncertain. It was at first thought to be that of a woman, but the so-called feminine features proved to be racial and not sexual. At present the skull is supposed to be that of a man.

The race to which Gibraltar man belonged is indicated by many features. The small squamous part of the temporal bone and the large greater wing of the sphenoid are primitive characters, shared as we shall see by the Neanderthal people, as indeed



are also the prominent supra-orbital ridges. The broad and low cranium and the flat cranial base are also found in Neanderthals. The backwardly compressed and wide upper jaw, the wide nares and the small mastoid processes are again Neanderthaloid features. Hence it may be inferred that the Gibraltar and the Neanderthal men were related.

But from these features one must not conclude that they were definitely of the same race, for the Gibraltar skull presents striking differences from that of Neanderthal man in the presence of a sharp edge at the margin of the floor of the nostrils on the face, by the absence of nasal grooves and by the shorter facial length. Many characteristics of the Neanderthal race suggest that it may have been negroid to some extent. The nose of Gibraltar man shows some Caucasian tendency.

Like the Mauer jaw, then, we may say that the Gibraltar cranium presents certain pre-Neanderthaloid characters, and that both of these ancient men were of a stock even the ultimate descendants of which have now become extinct.

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**Radium in Carcinoma.**—S. Louesey, New York (*Journal A. M. A.*, April 11), reports a case of disseminated carcinoma of the breasts in a man which had lasted for a number of years and which was greatly improved by the application of radium. Treatments were made three times a week for a month and after that once a week and at each treatment several individual nodules or parts of the nodular borders of the ulcers received an application equal to a total of fifteen minutes in each place. A month's treatment of the right side caused very marked improvement both in the local manifestations and in the general condition. At the same time the cancerous lesions on the untreated left side also improved, strengthening Tousey's belief that the application of the Roentgen-ray and radium to cancer develops some antibody which is carried through the system and in proper dosage benefits other foci beyond its immediate influence. The treatment was then begun on the left side and the case has since been one of steady progress for betterment or recovery.

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**Pseudopancreatic Cyst.**—The term "pseudopancreatic cyst" is criticized by F. A. Besley, Chicago (*Journal A. M. A.*, March 28), who gives an account of four cases. The condition, he says, is essentially a collection of fluid in the lesser peritoneal cavity and not a true cyst, and only resembles a pancreatic cyst in that the fluid sometimes contains the pancreatic ferments. He notices the previously published cases and gives a brief review of the anatomic conditions which with the trauma give rise to the so-called pseudopancreatic cyst. Three of the four patients whose cases are described were children and had been run over by wagons. The fourth was an adult who had received his injury in a railroad wreck. Each case gave a history of severe abdominal pain with nausea and vomiting immediately following the accident. There was some fever, tenderness and rigidity, which lasted until the tumor was recognized. Besley thinks the tumor can be made out in eight or ten days if carefully searched for and its appearance after an injury, protruding to the left above the umbilicus, together with the other symptoms mentioned rendered the diagnosis of fluid in the lesser peritoneal sac most probable. All the cases were treated by incision and drainage.

## PERSISTENT HEREDITARY OEDEMA OF THE LEGS (MILROY'S DISEASE) WITH ACUTE EXACER- BATIONS—REPORT OF TWO CASES

By JOHN PHILLIPS, M. B., Assistant Professor of Medicine, Western Reserve University, Cleveland.

The two cases of Milroy's disease, which I wish to report, are of particular interest because of the rarity of the condition.

*Case I.* Male, aged 40, was first admitted to the medical department of the dispensary of Western Reserve University and Lakeside Hospital, July 10th, 1912. He complained of severe cough, which was due to a subacute bronchitis, and this cleared up quickly under treatment. In the course of the physical examination it was discovered that there was a well-marked painless oedema of the left leg, extending from the knee downwards. The oedema was not so well marked over the foot and ankle, because it was reduced by wearing his shoe. Upon further questioning, the patient stated that this condition had been present from his first year of life. It had never caused him any great inconvenience, except that at times his affected leg would become red, swollen, hot, and very tender. At these times he would feel very ill and feverish, and there would be some disturbance of his stomach. He could assign no cause for these acute attacks other than at times it would follow slight injuries. This condition would subside in the course of three or four days. These attacks began at the age of ten years, and occurred once or twice a year until the past eight years, when they have been growing much less frequent. His right leg was unaffected and his left leg was normal above the knee. With the exception of the condition above described, there was nothing abnormal found on physical examination.

The circumference measurements of his legs were:

	Left Leg	Right Leg
Instep .....	10½ inches	9½ inches
Ankle .....	13¼ inches	9 inches
Calf .....	15¾ inches	14 inches

*Case II.* Boy, aged 6 years, son of Case I, was seen at the same time, as he had accompanied his father to the dispensary. He showed a condition similar to that seen in his father, except that the right leg was affected. The general character, of the swelling was the same except that there was greater oedema over the dorsum of the foot because he had been going about in his



bare feet all summer. His mother had first noticed the swelling of his leg when he was four months old, and it had gradually increased and remained persistent since that time.



The measurements of his legs were :

	Left Leg	Right Leg
Instep .....	6 inches	8 inches
Ankle .....	5½ inches	7½ inches
Calf .....	8 inches	10½ inches

The boy had suffered no inconvenience from his enlarged leg until the time he was first seen. In October, 1913, after a slight scratch on his right foot, he developed in a few hours a red, brawny swelling extending to the knee. This was very painful and tender to the touch. The upper border of the swelling was raised and sharply defined. His temperature rose to 104°F. and the patient had severe nausea and vomiting. The physician who saw him at that time thought that the condition was one of septic infection and advised operative proceedings, but the mother refused consent, because she knew that his father suffered similar attacks and quickly recovered. That her judgment was correct was shown by the fact that the pain, redness, and swelling disappeared, and the temperature returned to normal three days later. Since then he has had no more acute attacks.

The condition of persistent hereditary oedema was first

described by Milroy, of Omaha, in 1912, as "An Undescribed Variety of Hereditary Oedema." He reported 22 affected persons among 97 individuals in six generations. In France, in 1898, Henry Meige, under the title of "Trophoedème Chronique Héreditaire," described eight affected cases in four generations. H. D. Rolleston, in a paper upon "Persistent Hereditary Oedema of the Lower Limbs," in 1902, reported three cases in two generations. Hope and French, in 1908, described 13 out of 42 persons traced in five generations. In my two cases there was no history of any other members of previous generations being affected. Probably the best name to be applied to the condition until we know more of its pathology is that proposed by Rolleston, "Persistent Hereditary Oedema of the Lower Limbs." If priority of description is to be considered, it is rightly called Milroy's disease.

In these patients, cardiac, renal, pulmonary and haemic causes for the oedema can be excluded. Three possible local causes have been suggested:

(1) Venous obstruction or thrombosis; (2) Lymphatic obstruction; (3) Errors in the behavior of the blood-vessels or lymphatics, without their being any actual obstruction to them—vaso motor neurosis. So far no author has been able to demonstrate any changes either in the lymphatics or veins. If the so-called "acute attacks" preceded the development of the oedema, pathological changes in the veins or lymphatics would be a likely cause for the oedema, but in the cases in which the attacks do occur they are not present until a number of years has elapsed after the development of the oedema and in many cases are not present at all. Though the "acute attacks" resemble a condition of sepsis, no case has been described in which the patient has died from septicemia, so that the most reasonable explanation is that they are vaso-motor in origin, of the nature of "angio neurotic attacks," though there is no positive proof of this. As in the cases above described, the oedema stops suddenly at a joint either the knee or at the level of Poupart's ligament. The veins are not enlarged and the oedema can be controlled by bandaging, so that the patient may do hard work until old age. There are no sensory disturbances, but the muscles do not react readily to electrical stimulation because of the resistance in the dry, coarse skin. Pregnancy does not increase the swelling.

The best description of the "acute attacks" is that given by



Hope and French in describing one of these in a patient reported by them:

"It began on July 6, at 6 A. M., with a shivering fit which lasted until 8 A. M. She vomited, complained of headache, and had a pain along the outer aspect of the right thigh. At 9 A. M., her temperature was 101°F., at 4 P. M., her temperature was 103.2°F., and her pulse rate 116 per minute. Her visceral systems all seemed natural. Her right foot was red and swollen. An irregular circle of redness, about nine inches wide in front and two inches wide behind, surrounded the right calf, and felt much hotter to the touch than did the surrounding skin. It did not project like erysipelas. The veins on the thigh and leg became unduly visible, but they were not prominent. A single lymphatic gland, not very big, could be palpated in the groin, and little pellet-like nodules could be felt in the skin around the reddened area. Next day, July 7, the temperature was 102°F., and the pulse rate 96 per minute. The redness of the right leg was more general, the foot more swollen, and a red patch was present over the patella. The patient was very sick, being unable to keep even water in her stomach. On July 8th, the temperature was 98.4°F., the swelling and redness were still present but considerably diminished. On July 9, the leg and foot were still swollen and faintly red, but not painful. The red patch that had been on the calf was surrounded by minute raised spots, bright red in color, discrete, and rounded. On July 10 the leg began to ache during the afternoon; during the night it 'burned,' and on July 11 it was red and swollen, as at first. By July 16 the redness and pain had almost gone."

Males and females are about equally affected. Either the mother or father may transmit the disease without being affected themselves. Attention has been called by Hope and French to the incidence of nervous complaints such as weakness of intellect, epilepsy, and dipsomania, either in the patients themselves or in other members of the family. In my patient's family three children were mental defectives.

The diagnosis of Milroy's disease is easily made once the hereditary character of the disease, and the absence of local or general causes for the oedema, is established. Hope and French have summarized the characteristic findings in persistent hereditary oedema as follows:

- (1) The restriction of the oedema entirely to the legs.
- (2) The absence of any traceable cause for the oedema, general or local.
- (3) The strong family predisposition to the complaint.
- (4) The painlessness of the pale swollen legs (apart from the "acute attacks.")
- (5) The absence of constitutional symptoms.
- (6) The sharpness of limitation of the upper level of the oedema.
- (7) The incidence in both males and females.
- (8) The permanence of the oedema once it is established.

No treatment seems to have any effect on the condition except that the swelling may be held in check by bandaging. The disease has no influence upon the expectation of life of the individual.

### References

1. Milroy, W. F.—*An Undescribed Variety of Hereditary Oedema*, *New York Medical Journal*, 1892, LVI, p. 505-508.
- 2.—Meige, Henry—*Le Trophœdème Chronique Héritaire*, *Nouvelle Iconographie de la Salpêtrière*, Paris, 1901, XIV, 1899. See also *Presse Médicale*, 1898, No. 102, p. 341.
- 3.—Rolleston, H. D.—*Persistent Hereditary Oedema of the Lower Limbs*, *Lancet*, London, 1902, II, p. 805.
- 4.—Hope and French—*Persistent Hereditary Oedema of the Legs with Acute Exacerbations (Milroy's Disease)*, *Quarterly Journal of Medicine*, Vol. I, 1908, p. 312.

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**Mental Defects in Immigrants.**—H. A. Knox, Ellis Island, New York (*Journal A. M. A.*, March 7), describes the methods used at Ellis Island for testing mental defectives among immigrants. It is, at present, the sole work of one Public Health Service officer to discover the failing of normal illiterate aliens. As far as the tests err at all, it is on the conservative side, and if possible more severe tests may be required in the future. Knox gives in detail the tests that are employed, some of which are taken from Binet's questionnaire, and describes the precautions used to insure fairness. The examiner must be certain that the subject has actually reached his limit of ability and then leave a certain margin for possible improvements. Examples are given and tables showing the results of mental tests applied to children of various ages and nationalities. These show some greater facility of the Jewish immigrants as regards passing the mental tests, as over the Italian, Polish and Russian. The author does not seem specially to remark on this difference, though it would appear to exist from a glance at the tables.



## THE "CLIMATIC CURE" OF PULMONARY TUBERCULOSIS IN ITS RELATION TO OTHER METHODS OF TREATMENT

By G. W. MOOREHOUSE, M. D., Cleveland.

It may be well to note in an introductory paragraph that there runs throughout this paper a recognition of the fact that a patient with the symptoms of pulmonary tuberculosis has reached a serious crisis in his life. Further, that this is a crisis to be met with well-considered firmness on the part of the physician and a hopeful attitude on the part of the patient, since a recovery is often secured, and, humanly speaking, depends upon the promptness with which we have recognized the nature of the condition, the thoroughness with which we have instituted an adequate regimen and the willingness of the patient to carry it out. Had the paper, therefore, been written from a somewhat different standpoint it might well have been called a plea for an adequate regimen in the treatment of pulmonary tuberculosis.

With reference to the "climatic cure" of pulmonary tuberculosis it should be borne in mind that the value of any particular climate is still a subject of controversy, that the results in certain eastern climates to which pulmonary invalids resort in considerable numbers compare favorably with those from western resorts, and that in any locality where recognized methods of treatment are carefully carried out the results would probably be similarly favorable.

The above statements, if true, suggest that climate is not of such supreme importance as to be urged without reference to contra-indications should they exist, and this paper originated in an attempt to set down the indications and contra-indications for such a change. Popular report has it that some physicians advise a change of climate to sufferers from pulmonary tuberculosis as indiscriminately as others are supposed to pass out their latest samples of baby food. While, of course, such a statement is not true and while many individuals who should not leave their friends do so against the advice of their physicians, still we have a professional responsibility in making such a statement less true than it is at present.

The chief contra-indications to a change of climate may be found in the physical condition of the patient, the inability of his

family to finance the cure among strangers, the mental characteristics of the patient, and his plans for the future.

All will agree that no patient should be sent to die among strangers. Should the process appear to be advancing so rapidly as to make a fatal ending seem probable or certain, such a patient should be put absolutely at rest either in the home or in some nearby institution. If it be the desire of the patient to go to a more favorable climate, he may be assured that what is being advised offers him the greatest prospect of being able properly to make such a move at some future time, while to undertake it at present would be unwise.

We are well aware of the fact that along with the question of virulence of the infection and the natural resistance of the patient, which factors we are unable to measure, his ability to finance himself during the period of cure, while making a recovery from the disease or in securing its quiescence is of utmost importance. So far as the financial problem enters into the consideration of the application of measures appropriate to the treatment of tuberculosis in the home climate, I think we may say that the attitude of Cleveland is that no tuberculous individual shall be deprived of treatment on account of poverty. That if he, his family and his friends are unable to suitably finance him in his need, the city with its co-ordinated bodies engaged in this work will do so, in such measure as is possible. In this respect we must not forget that many individuals who are perfectly capable of financing themselves and their families in any acute disease are entirely unable to do so in tuberculosis. It is, therefore, unbecoming in us as physicians to continue the application of the untrustworthy methods in such instances. The matter of finance in climates where numerous pulmonary invalids congregate is much more difficult. The residents of such climates are burdened to the utmost with the indigent consumptive<sup>1</sup>; and in these climates where it is practically impossible to secure local aid all the necessities of life cost more than they do here. The amount of money necessary is extremely difficult to determine. However favorable the case may seem, there will be a period of several years during which at any time the necessity for rest and care may suddenly arise. Doctor Solis-Cohen, of Philadelphia, states that when the question of climatic cure arises he asks the patient if he can be certain of one thousand dollars (\$1,000) for himself and still

1 *J. A. M. A.*: 1913, Vol. LXI, p. 506.



leave his family provided for, and if such be not the case, he opposes any change of climate. Surely fifty or sixty dollars a month would be requisite to provide suitable shelter, food and supervision for a case of pulmonary tuberculosis in the west.

As to mental attitude, depression and homesickness, if present, are apt to counterbalance any favorable effect of the change. The physician would do well to inquire whether the invalid is to go alone or to take his family with him, whether he is of such disposition as to be contented and at home wherever he may set his suitcase, even though it be in what a very considerable proportion of new arrivals consider "a God-forsaken country." It is possible to be homesick to a very pronounced degree for old associates, or as an acquaintance once said, "for the lights of Broadway," even though the immediate family were taken along. So the possibility of homesickness is well worth consideration.

The necessity that may rest upon the patient of securing work at the earliest possible moment after work is to be considered and his plans for the future may constitute contra-indications to a removal from the home climate. The desire for old friends, old scenes and the greater ease with which suitable employment may be secured will be strong forces driving the patient back to the locality in which he broke down. Returning, before sufficient time has elapsed for complete healing and with the appearance of perfect health, to associates who by his removal have been prevented from learning the slow and tedious steps by which this gain has been made, he may resume unchecked the old unhygienic life and disaster follows. Then, too, as well as the absolute need of earning day by day one's shelter and food, the patient's plans for his future, should he make a recovery, are to be considered. Allow me to make a personal reference. For many years I said that, should I become tuberculous, I would immediately go west with the intention of remaining there. When that time came, somewhat unusually late in life, family reasons and personal plans made me desirous of spending what should remain to me of working days in the east. For that reason I am here, after a stay in the west, not in search of climate cure, but in a locality where the outdoor life is a pleasure rather than a hardship. Such a stay, it must be confessed, makes the outdoor life in Cleveland more of a hardship than it would have been had the adjustment been made at a time when continuous out-of-door living was more necessary. Although it frequently appears that a return to the

less favorable climate is the direct cause of a breakdown, it is probably true that if a real recovery from the disease is secured and the necessary time has elapsed for complete healing any statement as to the impossibility of returning to the old climate is largely incorrect. At this point it may be well to call attention to the fact that *time* is of so great an importance in securing healing in tuberculosis, or, in more advanced cases, in securing a large measure of quiescence and an ability to live with what remains, that repeated and long continued applications of what I have often been pleased to call "the oil of patience" might well be included among the primary measures of cure. What this time may be it is impossible to say. Under very exceptional circumstances six months may be sufficient. Two years or more are much more likely to be required.

To consider now the other side of the shield, the indications: the removal from the home climate may include the removal of a source of infection from the home, the beneficial effect of a change of surroundings, the advantages to be derived from climate in and of itself, and the possibility of greater comfort in taking the cure. Climate, to be properly considered as a useful measure in the treatment of tuberculosis, must first be assigned to its real place among such measures. These may, therefore, with propriety, be reviewed at this time.

The treatment of pulmonary tuberculosis implies, in accordance with the activity of the process, either rest, good food, fresh air, or rest and exercise, good food, fresh air as the primary measures of cure. Early, in cases of active pulmonary tuberculosis, before sufficient time has elapsed for the development of resistance, the relative importance of these measures are, in my opinion, better expressed by the phrase, "Rest in bed out of doors with adequate nourishment," than it is by their simple enumeration. Secondary measures which may be of value in any case of pulmonary tuberculosis needing treatment are the use of drugs, tuberculin, vaccines, lung compression and a change of climate. By placing climate last in the list of secondary measures there is no intention of suggesting that it is necessarily of least importance.

The greatest obstacles to recovery from a tuberculous infection (the natural resistance of the patient and the virulence of the infection not being considered) are the failure on the part of the patient and physician to secure an early diagnosis, and, the diagnosis having been made, a failure to apply promptly the



primary measures of cure. The most valuable as well as the most expensive of these measures is rest, since it makes necessary the giving up of one's occupation. It is least likely to be applied promptly to tuberculous individuals in dispensary practice and to those who, apparently, will be in need of material aid for themselves and their families as soon as they give up their work. It may be truthfully said, however, that a very large proportion of those who do not give up promptly are compelled by the inexorable course of events to give up at a later time when their financial circumstances are, to put it mildly, no better able to stand the strain, and when the rest is no longer of as great therapeutic value.

At this point I wish to quote from an article by Lawrason Brown, entitled, "Recent Advances in the Treatment of Pulmonary Tuberculosis by Air, Food and Rest" (2). After considering in the body of the article the need of rest and its application, and, after an acknowledgement that some individuals are so constituted nervously as to make it impossible to secure rest in the fullest measure, he gives a final paragraph which is in effect a personal confession of faith. The paragraph follows: "Had I to begin treatment today for tuberculosis, knowing what I do, however little it may be, I would go to bed and remain there for two months, whether symptoms were present or absent. Such, I feel, is the importance of rest at the beginning of treatment."

The greatest problem connected with the administration of fresh air is that of making your patient comfortable. Individuals with much associated bronchitis and those who repeatedly take cold, may do better on removal to a milder climate, or, failing this, if protected in the severer weather. The matter of food is of extreme importance, but it should not be forgotten that the stuffing process which was at one time so general is not at present regarded with favor.

We now come to a consideration of secondary measures in the treatment of tuberculosis. Drugs occupy very properly so prominent a place in the armamentarium of the physician that he is apt to use them far too freely in the treatment of tuberculosis. The more important symptoms of the disease: Fever, cough, expectoration and loss of weight are most effectively treated by the

institution of the primary measures enumerated above, leaving to drugs, however useful, a somewhat minor part.

In general the use of tuberculin should be limited to afebrile cases or to those that have become so under rest. It appears that tuberculin may at times be used to combat fever, but its use under this condition is so hazardous that it should not be undertaken without full consideration of its advisability. The use of appropriate autogenous vaccines in cases of mixed infection, and of lung compression most commonly secured by the production of an artificial pneumothorax are, in a limited number of cases, legitimate procedures in the hands of those familiar with their indications, limitations and application.

Climatic cure finds its appropriate place among the secondary measures and I wish here to express disapproval, in which we can all join theoretically, of the use of secondary measures in the place of primary measures, of advice to seek a more favorable climate, the giving of a bottle of medicine or an injection of tuberculin in the place, for instance, of the rest which these patients with active tuberculosis need.

Having discussed briefly the contra-indications of climatic cure, we may now consider its indications with reference to the other and often more important measures. These indications were stated as removal of source of infection, increased comfort in taking the cure, change of climate and change of surroundings. If the patient leaves his home, it will remove a source of danger from those most closely associated with him, particularly the children of the household. If the family goes with the patient, and this has certain manifest advantages, their ability to secure proper accommodations will determine whether this danger is increased or diminished. It is important in this connection to remember that in many localities with climate suitable to tuberculosis, and actually having a considerable tuberculous population, the public is inhospitable to acknowledged tuberculous individuals. This results in a lack of proper sanitary precautions and makes it difficult to take the cure. The patient should be advised against such localities. While the consensus of opinion favors a distinctly stimulating climate with considerable daily fluctuation of temperature down to a rather low thermometer reading, the patient's likes and dislikes may well be consulted in this matter and, having been consulted, the chosen climate may be one in which the open air treatment will be much more agree-



able and therefore much more likely to be carried out faithfully.

The value of climate alone in the treatment of tuberculosis is a subject of controversy. While I have personally had no experience of an extended residence in the elevated Rocky Mountain region, this particular locality being, by the way, most distinctly indicated for patients somewhat younger than myself, I have lived both in the Adirondacks and on the Pacific coast. In the latter from an altitude below sea level to the very moderate elevation of about 1,000 feet, and have never been able to recognize any benefit from climate except as it made outdoor life more agreeable. Climate, however, is probably of slight but real value, most valuable perhaps to the advanced case who must live with rather than completely recover from his tuberculosis. As to the stimulating effects of a change of climate or merely of a change of surroundings there is no controversy. Many competent physicians in climates considered most desirable for tuberculosis advise relatively frequent changes. We also see one who has contracted tuberculosis in what might be considered the best of climates sent to others which would be considered inferior. To assign much of the benefit derived apparently from a change of climate to the effect of change in and of itself strikes the cloak of mystery from climate and allows its real value to be more sanely weighed.

At the autopsy table we learn that a tuberculous involvement has, in many instances, been present without ever having been suspected. These have never been clinical cases and have made their recovery without treatment. A moderate number, also, of those clinically tuberculous secure a recovery without treatment. These facts, however, do not excuse a failure to apply adequate treatment to any case of clinical tuberculosis as soon as discovered. Such treatment should be instituted and will be followed by one of the following results: First, recovery; second, death; or, third, an intermediate result which is not infrequent but often lost sight of, namely the acquirement of an ability to live with tuberculosis. Governed by factors many of which we are unable to measure, these results are often attained only at the end of a long period of time. It may be more pleasant and indeed it may be more beneficial to carry out the treatment in some of the climates especially recommended to the tuberculous. What, however, is of supreme importance is the prompt institution of adequate treatment and its continuance under supervision for the necessary length of time.

**THE NEW PHARMACOPOEIA**

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The great change of mind that has taken place in the course of the last three decades in regard to the value and importance of the U. S. Pharmacopoeia cannot be better illustrated than by the recital of a conversation that I had about 25 years ago with one of the leading physicians of the city of New York. There was at that time a vacancy for a new position, that of professor of pharmacology, in one of the medical colleges in New York, and the physician mentioned above, who was professor of materia medica, had the appointive power. To him I applied, and although I understood soon that only a medical man would be appointed, I delineated to him a course of study as I thought it should be instituted. Hereby I mentioned the Pharmacopoeia as the leading book. He interrupted me: "The Pharmacopoeia, you say; I have heard the word before, but I have never seen the book. What is it and who is the author?" I looked at him in surprise. "I mean what I say," he continued, "tell me something about the Pharmacopoeia." I tried to impress on him the value and importance of the book; but he brushed my remarks aside with the words: "That may be as you say; but we need practical books, that give the student finished formulas; we have no time to bother with standards. A dispensatory or book on prescriptions is all we need." "But doctor," I ventured to reply, "do you not know that a dispensatory is only an enlargement of the Pharmacopoeia and that the description of every official preparation, drug and chemical is based on the Pharmacopoeia?" "That may be as you say," he retorted somewhat angrily, "but I have no use for the Pharmacopoeia in my school."

I do not think that such a conversation could take place today, nor that there is today a leader of a medical or pharmaceutical school with such views.

A great change has taken place. The book, hardly known 30 years ago by physicians and pharmacists, is now in every office, in every drug store, yea, in most states the presence of the book in pharmacies is compulsory. The main reason for the change of mind is the recognition of the necessity of higher education, both in medicine and pharmacy, and the raising of the standard in the examinations of the Boards of Examiners. But this higher education also put higher requirements on the leading book, the



book that may be called the strongest tie between the two professions. It is the one ground where both meet on equal terms, and from where, as a common center, the roads lead either to the office or the prescription counter. There is today hardly a man of prominence in medicine or pharmacy who directly or indirectly does not contribute to this book. He reads, he examines, he criticises, either in word and debate, or in contributions to professional journals. Others hear or read what he has to say, they agree or disagree, and reply, arguments bring new and deeper thoughts and examinations and sometimes new combinations and discoveries of new remedies. Thus this book excites the minds of the best thinkers and practitioners and is instrumental in transposing otherwise transient and fruitless thoughts into actions and beneficial results. And all these meditations, arguments, debates, criticisms and written articles are carefully collected, adjusted and considered by the revisors, who thereby deposit all that is useful and good into this final receptacle of the fruits of hundreds of thinking minds. If this was done carefully in former years, there is more reason for care and exactness now than before. During the last decade a number of national and state laws have been enacted, based on the wording and finding of the pharmacopoeia, which thereby has become the national legal book of standards for drugs and chemicals.

The Pure Food and Drug Act, passed by Congress some years ago, mentions the Pharmacopoeia and the National Formulary as the books of authority in all cases relating to purity and strength of medicinal agents; and the legislatures of nearly all states supplemented this national law by state laws of similar nature. This imposed a new task and new responsibility on the revisors, and greater care and circumspection had to be exercised in the wording and phraseology of the sentences. The difficulties caused by this apparently simple fact are hardly understood by men who are not directly concerned with this work. Scientific men are in the habit of thinking and arguing according to logical rules and conclusions and no quibbles or subterfuges enter into their minds and arguments. Not so with legal men. The difference in the way of arguing can best be shown by examples. When a botanist or pharmacognocist speaks of *Senna*, he means a certain well described and defined plant that rises before his mind. He combines with it certain well known pharmaceutical and medical properties, he knows certain definite preparations that are based

on these properties of known appearance, specific gravity, color, taste, alcoholic strength, etc. There may be a difference of opinion among pharmacists about the best method of making these preparations, or among physicians about the dose and uses—but to both Senna is Senna, whether in unbroken leaves, or broken leaves, or powder form, it is Senna and nothing but Senna. And in the case of a preparation, let us take *Linimentum Camphorae*, camphor liniment. It is a well defined solution of camphor in cottonseed oil, consisting of 200 parts of camphor and 800 parts of oil. There may be a difference of opinion as to the best way to make or preserve it, but it is always one and the same article.

I have selected Senna and Camphor liniment on purpose, because both have been the subject of legal decisions, and what I say is therefore more than mere theoretical argument. Some years ago an article was sold in Indiana under the name of Crushed Senna, which on examination contained only 30 per cent of senna leaves and an untold number of all kinds of other leaves. When it was offered in other states, it came under the interstate laws and suit was brought against the dealer for violation of the Pure Food and Drug Act, by labeling an article Senna that contained only 30 per cent of senna and 70 per cent of adulterants. To the ordinary mind that thinks plainly and logically there did not seem to be any room for argument or defense. Not so to the legal mind. It was argued before the court that the Pharmacopoeia contained the word, "Senna," but not the combination "Crushed Senna" and that there was no legal standard for an article called "Crushed Senna." The judge sustained this argument and the dealer went free. The second case happened in New York. A physician ordered camphorated oil and wrote these words on a piece of paper. The article sold by the druggist contained only 5 per cent of camphor, instead of 20 per cent, and suit was brought against the seller by the board of pharmacy. The physician testified that he meant to order the official camphor liniment. The defense claimed that as the words "Camphorated Oil" did not appear in the Pharmacopoeia as a synonym, the druggist had no way to know what was meant by camphorated oil and had a right to dispense a preparation according to his own judgment. The judge sustained this argument and the seller went free. In neither case was there any prejudice on the side of the judges. They both regretted that they could not give a different decision, but that as impartial expounders of the law they were compelled



to decide as they did. These two examples will give an idea of what difficulties confront the revisors of the Pharmacopoeia in making a book of standards not only for professional men but also for lawyers. No wonder, therefore, that sometimes the results of long and careful deliberations are upset at the last moment by the discovery of a slight irregularity that possibly might be misunderstood, and the whole work has to be done over. Another difficulty consists in the determination of what is to *go into* the Pharmacopoeia and what is to stay out. On this question there was, and is now, probably the greatest difference of opinion, and heated debates took place and sharp words were passed in the discussion. There are extreme views on this question. The one will exclude everything that has not a generally acknowledged and recognized medicinal value, while the other will take every article that is prescribed by some physician in some part of the country, without reference to its value. The one will admit only one chemical of a certain kind, for instance, only one bromide, as sodium bromide, and reject all other bromides as superfluous, while the others will extend the list as far as possible and accept every bromide known to the profession. The one will admit only simple drugs and chemicals and regulate all preparations, as syrups, tincture, etc., to the National Formulary, while the other will have a formula for every possible combination or compound prepared during the last three centuries.

And between these extreme views there are a great many intermediate ones, and hardly two of the 50 members of the committee agree on any one article. In speaking of this vast difference of opinions and the difficulties that must naturally exist, in bringing about a satisfactory result, we must not forget that all these men are honest in their convictions and that all aim at the one object, viz., to make the Pharmacopoeia the best and most useful book of its kind. It is, therefore, wrong and unfair to treat any one opinion, no matter how much it may differ from our own, as irrelevant or unimportant; they all must be heard and are entitled to the same respect and consideration. But this duty to adjust the many different views naturally must make the Pharmacopoeia a book of compromise. It cannot, and must not, represent the view of any one man, however prominent he may be; it must be a common representative of the wishes, efforts, labors and conclusions of many minds, varying in detail and in methods, but aiming all at one common and lofty result. There-

fore, the book will not bear the characteristic marks of one author; it has as many authors as there are members of the committee, yea, as there are thinking pharmacists and physicians in the country.

All these considerations will naturally lead to the conclusion that the Pharmacopoeia cannot be a textbook for medical or pharmaceutical schools. Its information on a drug or chemical and the description and dates that it gives are not exhaustive, but are intended only for the identification of the respective article, everything else must be excluded. It may serve to build up a textbook by furnishing the outline, for instance, for a dispensatory, or it may be used as an adjunct and proof to a work on materia medica. But the book itself is nothing but a kind of encyclopedia of limited scope, a reference book in cases of doubt or error, a book of standards in medicine and pharmacy. Neither pharmacy nor materia medica can be taught by this book alone; its information must be supplemented in every instance in order to give the student a clear conception and exhaustive treatise on the subject before him.

Let me now say a few words on the actual revision and the great amount of detail work that is necessary to accomplish it. There are 15 subcommittees, each one entrusted with a certain part of the work, and the 15 chairmen of these subcommittees form the executive committee that passes on every proposition and resolution before it goes to the general committee. I can best delineate to you the detail work of these committees by taking up the work, or part of the work of subcommittee No. 11, of which I am the chairman, the subcommittee on Syrups and Elixirs. There are now 29 syrups and 3 elixirs official in the Pharmacopoeia, together 32 preparations. These were distributed by the chairman among the seven members of the committee. Each member reported on the preparations allotted to him, either recommending their retention in unaltered form, or advising certain changes as he saw fit. His report was sent to the chairman, who then had copies made of it and distributed them to the other members.

Let us take the case of syrup of ferrous iodide. A change in the quality or quantity of iron and iodine may have been proposed. Member A wishes this change and states his reasons in his report. The report is copied and sent to B, C, D, E, F, G. Some of the members consent, some object, and others perhaps



wish a more radical change. All these answers are collected by the chairman, arranged, classified, sometimes simplified, and finally again sent out to all the members. New replies come in, and new circular letters become necessary. Finally all these arguments result in a motion, that may be radical in its nature or be a compromise of everything that has been said. Voting sheets are then sent out by the chairman and after a reasonable time the vote is announced. If the vote shows a decided majority, the dissenting members generally submit to it, although the right of appealing to the General Committee is open to every one. If the vote is a tie, the whole work seems to have been done in vain, and a double report may be sent to the General Committee for decision. But this is rarely done; as a rule the chairman then appeals to the members for further consideration or makes a new motion himself. Finally a satisfactory result is reached, not on the syrup, however, but only on one question. Thus the work goes on, and often the written work is supplemented by sending samples of syrups made after a new proposed formula, and the members themselves experiment with new formulas. I myself, being particularly interested in the syrups of ferrous iodide, have made more than 60 samples after so many different formulas. Every kind of sugar was used, every kind of preservation added, the formulas of nearly all pharmacopoeias of the world were tried, and the results of this work carefully tabulated. Other members of the committee did the same, either with the same syrup or with others, and sent out samples and comments. If now at the end the old formula is retained, such retention may be considered by some as a sign that no, or but little, work has been done with this particular preparation. But this is far from the actual facts. No matter what result is finally reached, the great amount of work performed by the conscientious members cannot be realized by outsiders and is known only to the workers themselves. The final report of the subcommittee is then submitted to the General Committee, who, as a rule, accepts and sanctions it. We have, however, had some instances that the General Committee disagreed with the report and referred the work back to the subcommittee.

The prevailing spirit among the members of the Committee of Revision is a conservative one. Unless there are good and strong reasons for a change, the old formula is retained, and justly so. For each change will more or less upset accustomed

thoughts and established methods and necessitate other changes in many, sometimes unknown or unexpected, directions. But this conservatism is not a stubborn adherence to old customs simply because they are established, and never stands in the way of recognition of new truths and discoveries or application of new, improved methods.

Let me close my remarks with a few sentences taken from a treatise on our Pharmacopoeia that I read some years ago at a meeting of the American Pharmaceutical Association:

It has been said that pharmacy in the United States is fast running into pure commercialism, that there is nothing in it but drudgery, that professionalism and ethics are hollow words, that there are no higher aims and that a pharmaceutical ideal is an excrescence of sickly imagination. Glance at our book. Does that look like commercialism? Is not every page of it an appeal to professionalism? Is not every sentence a strong testimony of the brain work and depth of mind that has produced it? Nearly every formula that has been brought down from former editions to the present one might elucidate the development and history of American pharmacy and might be used to demonstrate the progressive spirit of the profession. And this progressive spirit is the most notable instance of the difference between our Pharmacopoeia and those of European countries. The latter, too, show the history of pharmacy of their respective countries in a marked way. Sometimes preparations therein remind us of the mysticism of the Middle Ages, but also show how the light of truth and science gradually broke through the veils of ignorance and prejudice. But there is written on every page a stubborn conservatism that clings to old formulas and old ideas and yields only when there is absolutely no other way. Not so our book. It is enlivened by the spirit of progressiveness, of energy, of fervent desire for truth; it does not look back and cling to old traditions and mysterious fogies; its march is onward and upward.

Thus let our Pharmacopoeia continue to be our pride and exalted guide; let us work together from one end of the country to the other in preserving and enlarging its beauty, its dignity, its usefulness, and let us take the highest and broadest view of its future. Sturdy work and high enthusiasm are required to accomplish this aim. Let us not listen to the sneers of the skeptic who derides the ideal and laughs at enthusiasm. No great deed



has ever been accomplished without the pioneer work of the idealist, which, like the shining sun, shows us our way. We never expect to call the sun our own and grasp its golden rays; but we follow its brilliancy, and its warmth gives us power and courage. So also will a high pharmaceutical ideal aid us to march forward, elevate our profession and make us strong in the adversities of the present, and hopeful for a better future. And the United States Pharmacopoeia is the embodiment of this progressive and active ideal.

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**Early Diagnosis in Tuberculosis.**—R. S. Lavenson, Los Angeles, Cal. (*Journal A. M. A.*, April 18), criticizes the neglect on the part of physicians of the early diagnosis of tuberculosis. Having had under observation a number of patients undergoing sanatorium treatment, he was impressed with the frequency with which the diagnosis was made only long after the patient had presented himself to the physician with suggestive symptoms. In only twelve cases out of a total of sixty-six was the diagnosis made immediately or within a few weeks. In fifty-four it had been delayed from three months to five years. He summarized the records of the examinations of these fifty-four patients by seventy-two different physicians. In 13.8 per cent neither physical nor sputum examination was made or the temperature taken. In 52.7 per cent only a physical examination was made. In 12.8 per cent a physical examination was made and the temperature taken and no more. In 8.3 per cent the temperature alone was taken; in 4.1 per cent a physical examination was made and the sputum examined but the temperature was not taken. In 5.5 per cent the patient complained of the larynx and had only a laryngeal examination made. One patient had only a sputum examination and in one instance in which the diagnosis was not made, all three methods were employed. There is no doubt, he says, that in a fairly large percentage a competent clinician or specialist could detect early tuberculosis by the physical examination alone, but he does not think this is true of the average practitioner who, perhaps, cannot be held entirely to blame for his lack of diagnostic skill, considering the slight changes that characterize the early stages, but Lavenson holds that he must either perfect himself in physical diagnosis or call in skilled assistance. Moreover in some of the instances there was a lack of thoroughness in the physical examination which was made through the clothing and without instrumental aid. A positive sputum examination establishes the diagnosis but a negative test has not a like significance and Lavenson thinks there should be more laryngological examinations made. In all these regards he advocates reform. He also criticizes the undue neglect of the significance of hemorrhage which is rarely due to any other cause. It is possible in some cases that the physician has recognized the disease, but through mistaken kindness or dislike to disturb the patient's mental condition, had not informed him of the facts. Lavenson believes there is no justification for this in any case. The author was himself a victim of tuberculosis and died July 6, 1913, as stated in a note.

## THE SEDIMENT TEST FOR MILK

By H. O. WAY, M. S., Cleveland

During the last decade more attention has been given than in previous years to cleanliness of cow stables and to care in milking and handling the milk.

This may be said to be the result of the bacteriological examination of market milk; it having been found that cleanliness contributed largely to a low bacteria count. With this has come the apparent need of a means of determining the amount of dirt in a given quantity of milk. Hellens (1), who examined 100 samples of Finnessh milk, found that 35% contained less than 0.5 mg. of dirt per litre; 65% averaged 2.44 mg. of dirt per litre, while the maximum was 10.6 mg. per litre. He explains the good results as being due to the cleanliness of the stables and to grooming the cows. Bach (2) reports having examined 70 samples, in which he found the filth to range from 3 to 42 mg. per litre. The majority of his samples contained about 10 mg. per litre. He describes a rather complex apparatus for making the determinations.

Various methods and forms of apparatus for the determination of dirt have been devised. Most of these have been based on the determination of the weight of dirt in a given quantity of milk. Ballo (3) recommended the use of fine bolting cloth previously wet with water. The milk was filtered through this and then washed with water, alcohol and ether, after which it was dried and weighed. Fendler and Kuhn (4) used 100 c.c. of milk in a specially designed glass tube, then treated with ammonia and centrifugalized a second time, after which the specimen was filtered in a special platinum filter (ordinary filter paper retains the fat) washed with water, alcohol and ether and the weight determined as usual. They regard 1 mg. of sediment per 10 c.c. of milk as being dirty.

Revis (5) also recommends a special glass tube in which he centrifugalizes 50 c.c. of milk and determines the weight of the dried sediment. Weller (7) takes exceptions to the washing with water, alcohol and ether, claiming that some of the dirt is dissolved and low results obtained. Fendler and Kuhn (5) dispute this by attempting to show that the part of cow dung insoluble in water is not materially affected by the reagents in question; and that if the milk filter is not thus washed the results



will be from 54 to 100 per cent too high, owing to the presence of fat. They say that "a distinct sediment is yielded by milk which contains 10 mg. of dirt per litre." They also agree with Weller that the kind of filth should be considered.

On this basis some city standards have been proposed and adopted. Houston of London has suggested (1) less than 100 mg. per litre to settle on standing, 10 parts per 100,000. (2) This apparent filth diluted with water and centrifugalized the amount should then be less than 50 mg. per litre, 5 parts per 100,000.

The City of Dresden adopted a standard of 8 mg. of dirt per litre as the maximum.

All of the above methods are more or less complex and lengthy. They would not be practical for routine work except with a limited number of samples. More recently, however, there has been developed a method of filtering milk samples through small discs of absorbent cotton without necessarily attempting to determine the weight of the sediment. For this purpose Babcock and Farrington (8) have devised a filter surrounded with a jacket for hot water system so as to warm the milk and hasten filtering.

Tonney (9) in the Chicago Laboratory uses the ordinary Gooch apparatus connected to a Chapman pump. An objection might be made to this in that with suction there would seem to be more tendency to suck the finer particles of dirt into the cotton than where it is allowed to filter by gravity.

The cotton discs, as described by Babcock and Farrington, should be of "unsized" cotton about one-eighth inch in thickness. Ordinary absorbent cotton as placed on the market for medicinal purposes is quite suitable. The disc should not be over one-eighth inch in thickness, as it will work very much slower and will clog more readily with fat. Cream can be filtered, but the filter clogs with fat more readily. On removal from the filter, the cotton disc containing the sediment is laid upon a sheet of white paper opposite the serial number of the sample or the name of the person or firm from whom the sample was obtained. It is allowed to dry at room temperature, after which it readily adheres to the paper without the use of adhesive. As soon as possible after filtering it is graded in the manner to be explained, by the use of the numerals—1, 2, 3, or 4.

If the sheets are to be kept for any length of time, it is advisable to coat the cottons with mucilage (as suggested by

Tonney) damer or other pure white lacquer. Ordinary shellac or anything containing a trace of coloring matter is unsuitable because it stains and tends to obscure the sediment. It is also preferable that the lacquer be dissolved in some rapidly drying solvent as alcohol, acetone, or ether, so that the coating becomes hard quickly and does not allow particles of dust or dirt from the atmosphere to adhere as might be the case with slow drying.

In the Cleveland City Laboratory it has been customary to collect one-half pint of milk for lactometer and fat determination. After these determinations have been made the sample is filtered. One man using two Babcock and Farrington filters, can filter from 150 to 200 samples of milk in two or three hours. The rate depends, however, upon the thickness of the cotton, temperature of milk and somewhat upon the percentage of fat.

Soon after beginning the use of the filter in the Cleveland City Laboratory, it occurred that it would be advisable to have some definite legal standard for the measurement of the sediment in milk. The writer was requested to formulate a method of judging the filters with the result that the following was adopted as a subdivision of "Part Five, Title 3, Section 4, of the Regulations of the Board of Health of the City of Cleveland."

(n) For the determination of the dirt content, milk samples (approximately one-half pint) shall be passed through a filter consisting of an absorbent cotton disc, free from sizing, about one-eighth of an inch in thickness and with a filtering surface of three-fourths inch to one inch in diameter.

The filters shall be graded as follows:

(1) CLEAN milk shall be that which does not leave on the cotton more than six particles of foreign matter large enough to be barely visible without magnification, nor tint or color the cotton except with fat.

(2) FAIRLY CLEAN milk shall be that containing more dirt than is permitted in CLEAN milk but which does not contain hairs, flies, more than six particles of other than fecal matter with a dimension greater than 1 mm. and less than 5 mm., or areas greater than 5 mm. square which are covered or tinted with fine dirt sufficient to be distinct without magnification.

(3) DIRTY milk shall be one which contains more dirt than is permitted in that graded as FAIRLY CLEAN. It may contain dust, dirt, hairs, and particles of fecal matter not over



5 mm. in dimension. It shall not contain flies or sufficient dust, dirt, hairs or small particles of faecal matter sufficient to obscure the cotton.

(4) **FILTHY** milk shall include all dirty milk in which the cotton is absured by dirt, or which contains insects, bits of fecal matter with a dimension greater than 5mm., straws and other foreign objects.

(o) No person, firm, corporation, dairyman, creamery, cheese factory or dealer, shall ship or bring into the city, have in their possession, sell or offer for sale any milk which after above determination shall be graded as **DIRTY** or **FILTHY**.

While it is admitted that this method is not without fault, we believe that the chances for the so-called "personal equasion" are reduced to a minimum. After a little practice it is not difficult to determine into which of the four grades a sample belongs. Although the limits are expressed in definite measurements, one does not need to resort to calipers and ruler unless it should be in an extreme case. Should it become necessary at any time to take legal proceedings or in case of doubt or dispute, the value of the standard will be found in having something definite for reference. Although it would be possible to wash, dry and weigh the sediment, such a procedure would be impracticable where a large number of samples were to be handled daily in the ordinary laboratory without extra help. It is very doubtful if the results thus obtained would justify the extra expense incurred. The method, as outlined, considers both a qualitative and a quantitative determination of the dirt; which as Fendler and Kuhn, and Weller have all agreed, is more valuable than a quantitative determination alone.

### **Compared With Bacteria Count**

One might suppose that the dirt content would compare favorably with the number of bacteria present in the milk, provided that such factors as temperature and age of milk had been unfavorable to bacterial growth. That such is not the case is well shown in the table abstracted from one of our daily reports made on samples collected at the railway depot on the morning of Feb. 29th, 1912, and represents milk shipped by the farmer, presumably milked in the evening of the 28th and the morning of the 29th. Nothing is known about the methods of handling the milk previous to the time of taking the samples; but the temperature from 4 P. M. Feb. 28th to 10 A. M. Feb. 29th, as

recorded by the Local Station of the U. S. Weather Bureau was from 15° to 26° F., the average being 18.6°.

**Table I—Comparison of Bacterial and Dirt Content of Market Milk**

Sample Number	Shipper	Number of Bacteria Per cc.	Sediment
25849	A. B. J.	190,000	Fairly clean
50	A. B. J.	33,000	Fairly clean
51	A. B. J.	19,000	Dirty
52	A. B. J.	20,000	Dirty
53	A. B. J.	4,000	Dirty
54	C.	2,000	Dirty
55	H.	296,000	Fairly clean
56	A. K.	37,000	Fairly clean
57	A. K.	4,000	Fairly clean
58	A. K.	4,000	Dirty
59	A. K.	3,000	Fairly clean
60	A. K.	50,000	Fairly clean
61	A. K.	23,000	Fairly clean
62	A. K.	27,000	Fairly clean
63	A. K.	37,000	Dirty
64	A. K.	3,000	Fairly clean
65	A. K.	17,000	Dirty
66	A. K.	10,000	Fairly clean
67	W. A. H.	16,000	Fairly clean
68	W. A. H.	2,000	Fairly clean
69	W. A. H.	10,000	Fairly clean
70	W. A. H.	49,000	Fairly clean
71	W. A. H.	3,000	Fairly clean
72	A. McD.	26,000	Dirty
73	A. McD.	105,000	Fairly clean
74	A. McD.	39,000	Fairly clean
75	A. McD.	1,293,000	Fairly clean
76	A. McD.	137,000	Fairly clean
77	A. McD.	125,000	Dirty
78	A. McD.	26,000	Dirty
79	A. McD.	41,000	Dirty
80	A. McD.	113,000	Dirty
81	A. McD.	568,000	Dirty
82	A. McD.	40,000	Dirty
83	A. McD.	32,000	Dirty
84	A. McD.	Innumerable	Dirty
85	L.	202,000	Dirty
86	L.	216,000	Dirty
87	L.	78,000	Dirty
88	L.	296,000	Dirty
89	M. T.	44,000	Dirty
90	M. T.	80,000	Fairly clean
91	M. T.	4,000	Fairly clean
92	A. I.	19,000	Dirty

From the table we find that some of the samples marked "Fairly Clean" would be excluded by a bacteriological standard of 500,000, while on the other hand, several of the dirty samples



would pass the most restricting bacteriological standards for certified milk.

It is evident that one determination cannot be used to replace the other.

### **Enforcement of Regulation**

In enforcing the regulation applying to sediment both the shipper and the city dealer are held accountable. The shipper or producer is responsible for allowing the dirt to get into the milk and the dealer for accepting such milk from his shipper. A copy of the laboratory report is sent to the Meat and Dairy Inspector, who (on first offense) notifies the shippers of the dirty or filthy milk, of the condition, and excludes his milk from the city for a second offense. The apparent result has been greater care in milking and more interest in keeping milk clean during the subsequent handling of it.

In looking over a sheet of filters it is often possible to pick out the entire consignment of one shipper by the amount and kind of dirt on the filter. That much of the filth present in market milk is due to ignorance on the part of the producer is shown by a couple of incidents occurring when producers have come to the laboratory to get results of the examination of their milk. Having in mind particularly the percentage of butter fat present and being rather indifferent to other items, a group of producers called at the laboratory and asked for the results of the examination of their milk during the past year. One of these men, who was the shipper of six or eight forty-quart cans, after having been given the results of the lactometer reading and the percentage of fat and total solids of the last test of his milk, was told that the milk from his entire consignment was "fairly clean." He replied, rather lightly: "Oh, I don't care anything about that. That don't interest me. My milk is always the same." He was then given the results of the examination of an earlier consignment of about the same number of cans but which had been made several weeks previous to the one just mentioned in which all samples had been found to be "dirty." At this he was much chagrined, and at once became intensely "interested." He was shown sediments from milk which had been scored as "dirty," and readily admitted that it was correctly labeled. He was greatly impressed with the idea that the amount of dirt in his milk could be so readily determined and pronounced it the most valuable of all the determinations made

in the examination of milk. He went away determined that his milk should not be scored again as "dirty."

A few hours later on the same day there occurred another incident almost identical with the one just cited. These cases show the moral and educational effects, which, undoubtedly, are much more potent factors in bringing about the desired results than could be obtained by legal measures at this stage in the development of sediment determination.

With the dealer the effect is somewhat different. Some are inclined to pass the blame back to the producer, feeling that as they are not responsible for the dirt getting into the milk they should have no further concern in the matter.

In conclusion, the sediment test in milk furnishes a very efficient, graphic means of demonstrating to the layman the importance of care in the production and handling of milk, while the statement that his milk contains so many thousands or millions of bacteria may not bring forth an intelligent response.

### References

- 1 Hellens, O. V.: *Abstract in Exp. Station Record*, 12 (1900-1901) p. 184.
- 2 Bach, O.: *Abstract in Exp. Station Record* 12 (1900-1901), p. 982.
- 3 Ballo, M.: *Abstract in Exp. Station Record* 16 (1904-1905), p. 131.
- 4 Fendler & Kuhn: *Abstract in the Analyst*, 34 (1909), p. 322 (*Orig—Zeit, Untersuch, Nahr, Genussm*, 17 (1909), p. 513-526).
- 5 *Abstract in the Analyst*, 35 (1910), p. 126 (*Orig—Zeit. Untersuch, Nahr. Genussm*, 19 (1910), p. 13-21).
- 6 Revis, C.: *Abstract in the Analyst*, 34 (1909) p. 403 (*Orig—Journal Roy. Inst. Public Health*, 16 (1908) p. 734).
- 7 Weller: *Abstract in the Analyst*, 34 (1909), p. 489 (*Orig—Zeit, Untersuch, Nahr, Genussm*, 18 (1909), p. 309-313).
- 8 Babcock & Farrington: *A Milk Sediment Test*, *Wis. Agr. Exp. Station, Bul.* 195 (1910), p. 9-13.
- 9 Tonney, F. O.: *A Portable Outfit for the Determination of Visible Dirt in Milk—American Journal of Public Health*, 2 (1912), 4, pp. 280-1.

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**Stomach Perforation.**—Y. A. Little, Milledgeville, Ga. (*Journal A. M. A.*, March 21), gives an account of a patient in the Georgia State Sanitarium—a dementia praecox patient who was promptly operated on after symptoms of peritonitis with very acute abdominal pain and a pencil 6½ inches long removed from the stomach. The patient's recovery was uneventful, aside from a slight infection of a portion of the wound which healed by granulation. A gastric fistula lasted for ten days. The pencil had been in the stomach for a long time, as the graphite had been dissolved away and the two halves separated on removal. It had apparently previously given the patient no inconvenience. According to her own testimony it had been in her stomach for several years, but her statements were not generally reliable.



**A HISTORY OF THE PHYSIOLOGY OF DIGESTION**

By ROY G. PEARCE, A. B., M. D., Instructor in Physiology in Western Reserve University, Cleveland.

Rather than go back to the early and interesting days when the physiology of digestion was a curious mixture of truth, fable, mysticism and religion, a time in which we are chiefly interested because of the humor in the ridiculous and ignorant beliefs, it seems better to start with the first rational ideas of alimentation.

From the earliest days, the digestive system has interested both people and physicians. So long as the individual was free from hunger and thirst and had no pain in his abdominal cavity, the stomach was a wholly uninteresting and abstract organ; however, as soon as he was made aware of its presence by disease or want, his interest was awakened in the nature of the processes of the then very concrete organ. In the literature of the early days we find charts of diets suitable for the treatment of various diseases, and now-a-days we find traces of these ancient superstitions in our grandmothers' remedies.

Passing over the work of the Greeks, the Romans and the Arabians, we will therefore begin with the life of Paracelsus, a famous and perhaps greatly overrated physician of the fifteenth century. Paracelsus did not directly aid in the advancement of the physiology of digestion, but inasmuch as he was the first to combine chemical ideas with the theories of digestion, he was the forerunner of a later school. Born in 1493, near Basel, Switzerland, he attended the university at his home town, and later traveled in almost all parts of the world known at that time. He added to his knowledge of chemistry, alchemy, religion and pharmacology from every conceivable out of the way source, and later on returning to Basel, was appointed town physician and given a lectureship in the university. His great conceit, coupled with a mixture of learning and charlatanism, soon awakened great opposition, and he was forced to leave Basel and become a wandering physician. Sometimes, by effecting a wonderful cure in a prominent man, he gained great popularity and many friends, only to find himself shortly afterward in need and without a single friend. Browning, in his poem "Paracelsus," gives a very interesting picture of the old quack.

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\*This is the third of a series of lectures on the History of Physiology, which was delivered before the Sophomore Class in an elective course, March, 1914. The first and second lectures of the series appeared in *The Cleveland Medical Journal* for March and April, 1914.

Paracelsus taught that all the material changes are governed by the spiritual forces, which he termed "archaei," and that all physiological processes are chemical reactions and are governed by an archaeus, the chief one of which lies in the stomach. Disease is the failure of the archaeus to act, and death is the loss of the archaeus.

He combined some of the scientific truths of the day with religion, superstition, and the mysticism of the East, and thus developed a system of quack medicine and pharmacology, which, in spite of its errors, awakened the germ of truth in succeeding students.

The most conspicuous of these John Baptista van Helmont, was the first to look upon digestion as a fermentative change. He accepted the doctrines of Paracelsus concerning the archaeus, or vital principle, and claimed that it was due to the local archaeus that a ferment, aided by the acid, digested the food in the stomach. This "ferment acidium" caused the necessary changes to take place in the food not by means of heat but by some vital action, or, as he puts it, "A digestive ferment, therefore, has the essential power by reason of its vital activity of causing transmutations."

Perhaps the most interesting of van Helmont's theories is the one relating to the manner in which the tissues make use of the digested food. He says, "The food is carried by the blood to the separate tissues, where small kitchens are placed to make from the common ingredients of the blood, the special substance needed by the tissue." The singular thing about this teaching is, that within the last two years Folin and Dennis and others have substantiated this theory.

Van Helmont's theories had a great influence on his successors, since he was the first to correlate the digestive changes in the body and those produced by fermentation due to yeast. In spite of his vitalistic teaching, he did much to advance the physical chemical ideas of digestion.

There were several men who adopted in part the ideas of van Helmont, but the advance of chemical knowledge caused them to drift away from the vitalistic "archaeus" and to apply the more physical chemical views of digestion. Among these are Sylvius and his pupils, Stenson and de Graff, who made numerous researches on the pancreas and salivary glands, and attached the greatest importance to their secretions.

In 1682, Brunner succeeded in removing the pancreas from a



dog, and it is very interesting to note that he observed symptoms which we now know arose from the diabetic state of the animal. He reports that the dog was very thirsty and hungry and had polyuria. The neighboring butcher objected to the dog because, in his hunger, the animal stole quantities of meat from the open market. Brunner, however, hesitated to kill the animal, for, as he says, its behavior afforded him much pleasure. This experiment placed a somewhat different aspect on the importance of the pancreatic juice from that allotted to it by Sylvius.

While the followers of Paracelsus were developing the chemical side of physiology, Borelli, the mathematical genius of Pisa, whom we have before mentioned, was attacking the the problem from the standpoint of physics. By a number of researches on the crushing power of the bird's gizzard, he arrived at the conclusion that digestion was a mere mechanical process, and proceeded to estimate the grinding power of the stomach. Following him were a number of men who denied the chemical action of the digestive juices, and accounted for the whole process of digestion by mechanical means. It reminds one of the blind man's conception of the elephant. Each investigator thought that the process in which he was interested was the all important one.

Lest the mention of too many names should become tedious, we will pass over some of the interesting men and proceed to review the conceptions of the physiology of digestion held during the middle part of the eighteenth century. These are well given by Haller in his physiology published in 1757. Saliva, he thought, was a neutral juice, the function of which was to soften the food and to help deglutition. The tunica villosa furnished the mucus for the stomach, and the true gastric juice was secreted by the arteries. He believed the gastric juice was neutral, and that the acid sometimes present was due to the degeneration of food. He did not believe in van Helmont's ferments or archaei, but said that the gastric juice was a macerating fluid. He places a just importance on the trituration of the food in the stomach. The pancreatic juice was important, first to soften the food, and second to neutralize the bile, although he said that all its actions were not as yet understood.

Rene Antoine Ferchault de Réaumur stands out as one of the great scientists of the eighteenth century. He was born in 1683, at Rochelle, France, and was educated for the profession of law. He had an ample fortune, and, being interested in science,

he carried out many varied and interesting scientific researches. He did much for the steel industry; invented a thermometer scale which bears his name; and did a great deal of biologic work on insects. It is his work on the digestive process in birds which calls for our attention in this connection.

Réaumur wished to decide whether the changes which occur in the stomach are due to a mechanical or to a chemical process, and possessing a pet kite, he made use of the bird's habit of expelling indigestible material to solve the problem. After making small hollow metal tubes, both ends of which were protected with fine network, he placed food in these and examined it after it had been in the stomach of the kite for some time. He found that meat thus given would be more or less dissolved, that bones were much changed in the stomach, but that whole grains of wheat or baked stuff thus treated, suffered little change. He found the tubes contained a small amount of yellowish juice which was bitter to the taste. Anxious to discover the nature of the juice which was able to dissolve bone and meat, Réaumur made the bird swallow sponges from which he was able to squeeze a small amount of fluid. He attempted to discover the action of this fluid on meat outside of the body, but failed to get positive results. The kite died about this time, and his experiments came to an end. He continued his investigations on dogs and sheep, recovering the tubes by killing the animals at various times after digestion had started. Although his results were incomplete, he showed that gastric juice exerted a marked solvent action and that it dissolved some foods and had no effect on others. Haller speaks of this work as showing a new method for the investigation of gastric digestion.

Twenty-five years later we find the Italian, Spallanzani, whom we mentioned in connection with the discovery of the circulation and the respiration, taking up the work which Réaumur had begun. He adopted the Frenchman's methods and examined the gastric digestion in a great number of different animals. Spallanzani even experimented on himself and swallowed little silk bags and wooden tubes containing food, which were afterward recovered in the feces. He collected pure gastric juice, as he thought, by vomiting on an empty stomach (which he observed was most disagreeable), or by tying strings to sponges and swallowing them and after a short time pulling them out of the stomach. He made several successful attempts to digest food outside of the stomach with the juices thus obtained.



The current views of digestion at that time were that the process was a sort of fermentation. By fermentation they meant that it was either a putrefactive or a fermentative process attended by either gas formation or acid fermentation, which have their counterparts in the two stages of vinous fermentation. Van Helmont thought that the gastric juice was acid and hence gastric digestion was of the nature of an acid fermentation. Spallanzani was forced to conclude that it was not a putrefactive change, since meat did not putrefy in gastric juice outside of the body, but rather went into solution. He ruled out gaseous fermentation since he was never able to observe effervescence on mixing gastric juice with the food. The idea of acid fermentation was dismissed, since he was not able to distinguish acid in the gastric juice, probably because he always experimented on an empty stomach.

It may be said that Spallanzani showed that the gastric juice effected its action through a different process from that which had as yet been described, and he settled beyond a doubt that its changes were not of the fermentative type. It was left to the workers of the nineteenth century to show just what the nature of gastric digestion is.

In the early part of the century Gmelin and Tiedemann made their classical researches on the microscopical and chemical structure of the various digestive juices, and on the condition of the food during different stages of digestion. About 1824 Prout showed that the gastric juice, secreted during digestion, was acid, and that the acidity was due to hydrochloric acid, and in 1834 Schwann discovered pepsin.

Dougliston, in his physiology published in 1834, discusses the various theories of digestion then held, and in a general way accepts the chemical ideas as being the true ones. However, he is very vague as to the precise manner of the action of the various juices. He quotes the apt remark of John Hunter, the great English physician, who said: "Some physiologists will have it that the stomach is a mill, others, that it is a fermenting vat, others again, that it is a stewpan, but my view of the matter, gentlemen, is that it is neither a mill, a fermenting vat, nor a stewpan, but a stomach, gentlemen, a stomach."

To an American army surgeon belongs the credit of placing the physiology in the light in which we see it today, and we Americans should be proud of this our first research to win international reputation. In the spring of 1822, Beaumont, the

army surgeon at the old historic fort, Mackinac, on the upper Great Lakes, was called to treat an accidental gunshot wound in a young French Canadian voyager, Alexis St. Martin. The left pleural cavity and the abdominal cavity were pierced, and a bad opening was made in the stomach. In the course of two years, owing to the careful attention and nursing of Beaumont, the man entirely recovered, but there remained a fistulous opening into the stomach, which gave him the name of "the man with a lid on his stomach." St. Martin, in return for this care, allowed Beaumont to make use of the gastric fistula in order to experiment on gastric digestion. Beaumont was forced to make use of many tricks and much persuasion, and was often disappointed because of the character of his patient, who on one occasion left him without permission, and was only persuaded to return with great expense to Beaumont. The observations took place at four different times during a period of ten years. St. Martin lived to be a very old man and died at St. Thomas, Canada, in 1880. Beaumont died in 1853, in St. Louis, where he was a very prominent and worthy doctor. The observations made on St. Martin were first published in 1834, and were translated into French and German almost immediately.

One of the very interesting portions of Beaumont's work is his description of the gastric juice, which is still current almost verbatim in various textbooks of today, and which I recognized at once when I read the paragraph in Beaumont's work: "Pure gastric juice, when taken directly out of the stomach of a healthy adult, unmixed with any other fluid, save a portion of the mucus of the stomach with which it is most commonly and perhaps most always combined, is a clear, transparent fluid; inodorous; a little saltish, and very perceptible acid. Its taste, when applied to the tongue, is similar to water slightly acidulated with hydrochloric acid. It is readily diffusible in water, wine or spirits; slightly effervescences with alkalies; and is an effectual solvent of the alimentary material. It possesses the property of coagulating albumen, and in an eminent degree; is powerfully antiseptic, checking the putrefaction of meat; and effectually restorative to healthy action when applied to old foetid sores and foul, ulcerating surfaces."

He had various chemists make an analysis of the juice, the results of which confirmed the work of Prout that the acid was hydrochloric acid. He showed that the mucus secreted was an



independent secretion. He investigated the effect of mental states on the secretion of juice and the digestion of food. These experiments have since been confirmed by Pavlow. He confirmed the work of Spallanzani and other observers that the digestion which occurs in the stomach is like that which occurs when food is incubated with gastric juice. He showed that the fluid portion of the meal is quickly passed on through the stomach, and made the first comprehensive and thorough study of the movements of the stomach. This latter work has been the accepted explanation till the present time, and has in recent years been amplified by Cannon, Carlson and others.

His work on the digestibility of different food stuffs is very interesting, and today is one of the most practical additions to diatetics. Beaumont made a great point concerning the harmful influence which tea, coffee and alcoholic liquor have on the digestion. From his experimental data, he also came to the conclusion that the individual takes into his stomach far more than is necessary.

It seems unusual that in the wilds of America, an army surgeon, without any particular education save that which he gained through the study of books in a country doctor's office, should have had an interest in the work which Beaumont chose, and should have had that breadth of intelligence and inspiration which are necessary to do the painstaking research he accomplished.

He was a man of the greatest integrity, and for every observation he supplied ample proof. A little quotation from Beaumont will indicate how he appreciated the value of hard, patient and persevering research, and his attitude towards that which was the product of fancy:

"It is unfortunate for the interests of physiological science that it generally falls to the lot of men of vivid imaginations and great powers of mind to become restive under the restraints of a tedious and routine mode of thinking, and to strike out into bold and original hypotheses to elucidate the operations of nature or to account for the phenomena that are constantly submitted to their inspection. The process of developing truth, by patient and persevering investigation, experiment and research, is incompatible with unrestrained genius. The drudgery of science is left to humbler and more unpretending laborers. The flight of genius is, however, frequently erratic."

**Public Laundries in America.**—"Public health is purchasable"; so, indeed, is public cleanliness. As a matter of fact, it is obvious that, when we begin to spend money for public health, we can have no certainty of obtaining it unless we have entered the market for cleanliness. In general, cleanliness is a prerequisite for health. If the state or the community recognizes a responsibility in the form of maintaining health, it is quite logical, then, for it to recognize the obligation which lies upon it to make provision for public decency. Many communities provide the means for the cleansing of human bodies. It is just as essential to health and *decency* that public facilities, where private ones are lacking, should be provided for the cleansing of the garments the condition of which must, otherwise, lower the tone of decency of the people in the community. I emphasize *decency*, for it is essential that health workers should realize more and more that it is impossible to justify most of our expenditures if we consider these expenditures to be inductive to health *alone*. It is very difficult to definitely ascribe ill health to dirty streets, unsightly back yards, and such undesirable elements in our physical environment for the elimination of which we spend thousands yearly, not in reality to maintain public health, but, as a matter of fact, to establish public decency.

Among the great mass of the poorly-housed tenement population of the large American cities, the facilities for washing clothes are decidedly meager. This condition has been met in a few cities by the establishment of public laundries, or, more properly speaking, public wash houses, fashioned largely after the plan of those long in use in foreign cities. What is a public wash house? It is a place where those people who have very inadequate home facilities may go and wash their clothes under decent and sanitary conditions for a very small cost and with a minimum of time expenditure. The building, usually a part of a public bath, is plentifully supplied with steam and hot water, and is equipped with tubs (two or three for each washer), wringers, electric irons and ironing boards, mangles sometimes, scrubbing boards and all minor utensils. Those using the establishment are also permitted to dry their clothes in large steam dryers, while at the same time a store is maintained where bluing, starch, soap, etc., are sold at cost. Although it is very infrequently found in this country, there should always be in connection with such an establishment a day nursery where the women can leave their children in safe hands while they do their laundry work.

Such is a public house. There are about fifteen such institutions in America, five of which, and by far the best of them, are in Baltimore, Md. They have been in existence for nearly twenty years abroad, and in London in 1911 there were thirty-five such institutions, patronized by nearly a million washers. Rarely, abroad, they more nearly deserve the name of public laundry than that of public wash house, when the equipment includes electrically driven washing machines, hydro-extractors, etc. The experience in this country has been that it is practically impossible to employ with safety this sort of apparatus, nor is it economical enough to be an advantage to those needing a wash house.

Under what circumstances is a public wash house a necessity? Obviously, where laundry facilities are poor in the home. Among the tenements, where wash tubs are rare, dark damp courts provide the only means for drying, and hot water is frequently an impossibility—here the demand is urgent. From this point of view, it is strange that the largest city in America, and indeed the typical tenement city, should be without any public or private provision of this kind. Philadelphia, Baltimore, Buffalo, Elmira and other cities have found an urgent demand for and an immediate success following the establishment of public wash houses. There can be no doubt of the necessity of these agencies of decency in many other large American cities, particularly in New York.—*American City Pamphlets.*



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## EDITORIAL

### A High-Priced Proprietary

A report from the American Medical Association Chemical Laboratory (Jour. A. M. A., April 4, 1914, p. 1108) brings out the fact that, while the proprietary preparation Diuretin costs \$1.75 an ounce, the same product may be purchased under its chemical name—theobromin sodium salicylate—for 35 cents an ounce. It is made clear in the report that the product first hav-

ing been introduced into medicine under the therapeutically suggestive proprietary name, "Diuretin", the owners of this name feel confident that the profession will continue to use this name and thus feel safe in charging such an outrageously high price.

A somewhat analogous condition was brought out by a contribution from the same laboratory (Jour. A. M. A., March 16, 1912, p. 801) on the purity of the product sold as acetphenetidin and also as phenacetin. Here it was shown that for the drug under its pharmacopoeial name acetphenetidin a price of 6 to 7 cents an ounce was charged, but under the name phenacetin, by which name the drug was introduced, 33 cents an ounce was still asked. It was also explained (Jour. A. M. A., Oct. 5, 1912, p. 1308) that the word phenacetin had, with the expiration of the patent on the product, become the generic, free name for the substance and that physicians and pharmacists should consider it as applying to the substance and not to any particular make of it. But, while in the case of phenacetin, the proprietary rights in the name ceased with the expiration of the patent, in the present instance the product was not patented and the name protected only by registration under the trademark law, and, under the present interpretation of this law, will remain the exclusive property of the firm, which now owns it, for an indefinite period. In view of this the physician who does not want the public to pay tribute for his use of a catchy, suggestive name, should learn to use the chemically descriptive title theobromin sodium salicylate (Theobrominae Sodio-Salicylas).

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**Asthma.**—B. C. Davies, Monrovia, Cal. (*Journal A. M. A.*, March 28), rejects the older classifications of asthma and even the more recent one of intracardiac and bronchial asthma, and considers it only as a reflex acting on the innervation of the circular muscular fibers from irritation in other parts of the body causing hyperemia of the bronchial mucosa spasm of the muscular fibers, and also of the diaphragm. He quotes cases supporting these views in which the asthma was due to gastro-intestinal disorders, adenoids and nasal troubles, genito-urinary irritation, etc., and was relieved or cured by treatment of the causal conditions. He suggests, reasoning from his own experience, that asthma be no longer considered a disease entity but as a reflex symptom. The examination in these cases should be complete and exact. The treatment very often lies in preventing the attacks, hence it is in the hands of the patients to a large extent and they should receive full instruction as to its cause and prevention.

**Bone-Cutting Engine.**—W. G. Stern, Cleveland (*Journal A. M. A.*, April 4), speaking of the inconvenience of the high-speed bone-cutting instruments now in use, the difficulty of sterilizing them, etc., describes and figures a light electrical hand-drill, an adaptation of the Duntley Universal Electrical Drill, No. 000, and gives the method of its use. Any shape of rotating tool can be used with it without splintering or chipping a bone, such as occurs with the chisels or gouging, and sterilizing of the parts where it is required are practicable, leaving no unsterilized surface near the field of operation.



## DEPARTMENT OF THERAPEUTICS

Conducted by J. B. McGEE, M. D.

**Carditis:** George Montague Swift, in the *Medical Record* for Feb. 21, treats of carditis. For several years it has been evident to him that the cause of heart disease and also of acute joint disease in children had in most cases to do in some way with the infections occurring about the nasopharynx (adenoids, ethmoidal cells, tonsils), but especially with the infections of the gums and alveolar processes which have been irritated by the presence of decayed teeth. If these sources of infection were removed and the condition of the nasopharynx and gums improved, in most cases of acute cardiac disease, distinct and immediate improvement occurred in the condition of the child. The continuously elevated temperature would subside, and the child would practically recover, though often with a murmur remaining. Thomas Lewis, of London, describes the myocardial involvement and localized inflammatory lesions due to infections, and he is impressed with the idea, that there is a difference between the rheumatic infection and infections by other organisms, though the signs produced by the local inflammatory foci are the same. Swift believes that all parts of the heart are involved together by the infecting organism, but naturally in different degrees; in fact we have to do with a carditis, implying that all parts are affected, rather than any one. When one bears this idea in mind, one readily understands how so many children have become the victims of such a septic process. A more or less virulent organism may be absorbed from a postnasal inflammation or tonsillitis. In these or similar conditions, and an organism which happens to have an affinity for the heart, or with diminished resistance, a cardiac infection may easily result. The points he impresses are (1) that acute cardiac affections are due to germ infections, a sepsis; (2) that the infecting germs are distributed throughout all the structures of the heart, and by the blood vessels of the coronary system, and (3) that the most important factor in treatment is the discovery of the source of infection and its removal.

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**Cardiac Remedies:** Theodore C. Janeway, in the March number of *The Archives of Internal Medicine*, considers the comparative value of cardiac remedies. As to digitalis in acute cases, in mitral disease, the more completely a given circulatory disturbance is dependent on a rapid rate, which can be controlled by digitalis, the more brilliant is the therapeutic effect of the drug. The best example of this, in his opinion, is not the extreme cardiac insufficiency with marked chronic passive congestion after long-standing auricular fibrillation in mitral disease, but the cases of well-compensated mitral disease, in which articular fibrillation with great tachycardia sets in acutely. As a rule dyspnea is inconspicuous the symptoms being great exhaustion on exertion, dizziness and a tendency to syncopal attacks. The tachycardia in these patients can be controlled by digitalis within forty-eight hours, with complete relief of the symptoms, and under long-continued digitalis medication such patients may maintain a very fair working ability for several years. It is of the highest importance that treatment be instituted before marked dilatation of the right heart and general venous stasis have ensued. He believes the three elements contributing to the result in these cases are (1) The existence of a disorder of the rhythm against which digitalis is absolutely effective (2) The existence of a valve lesion, the detrimental mechanical effects of which on the circulation are peculiarly heightened by auricular fibrillation (3) The acute character of the onset of fibrillation in a heart which would have remained well compensated for years, had not the disturbance of rhythm occurred and which therefore must be considered as having had a good right ventricular myocardium. Next to these acute cases of fibrillation in response to digitalis comes the type picture of gradual cardiac insufficiency, with general venous stasis

and edema. Here again, if fibrillation be present, the rapidity and completeness of the functional recovery is in almost direct proportion to the heart rate. In other words, the more these cases conform to the acute type, the more promptly does the control of the tachycardia by digitalis effect a restitution of function. On the other hand, even in rheumatic mitral disease with fibrillation, if the rate be normal or slow, the effect of digitalis treatment may not be evident, until it has been administered for a week or more. As to dosage he has not found the large doses used by Mackenzie and Cushing to be necessary. He prefers a moderate dose, not over 0.1 gm. (1½ grain) of the leaves every four hours, which will give definite slowing of the pulse and diuresis in forty-eight hours in rapid fibrillating cases. This dose he continues until the pulse falls to near 60 or becomes bigeminal; failing this, until absorption of edema is complete or nausea, vomiting headache or other toxic symptoms ensue. In all fibrillation cases with a tendency to rapid rate, after the original digitalis course, he believes the indications for continued so-called chronic digitalis treatment are absolute. The efficiency of such hearts depends largely on the maintenance of a normal rate. A normal rate can be obtained by perpetuating the right degree of digitalis block. Strophanthin and caffeine and its allies are also considered.

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**Hyperthyroidism:** Charles E. de M. Sajous in the *New York Medical Journal* for April 11, treats of toxemias in the genesis of hyperthyroidism, and their treatment. What is known of the etiology of goitre shows clearly that we should not seek a specific agent as a common cause. Important in connection with this, is the fact that while iodine, the iodides, and thyroid gland prove curative in appropriate cases of goitre, they are harmful in cases of true exophthalmic goitre. There is doubtless some feature which causes the diseased glands to react differently in the two disorders. What is this feature? The solution of this problem seems to be one which has not so far been thought of. It is submitted therefore only as a working theory. As to treatment he believes, in the light of present evidence, that it can be brought within the field of rational therapeutics. One of two pathogenic factors prevails in practically every case: (1) A toxemia of some sort, and (2) a neurosis. Both by producing central excitation, cause exaggerated functional activity of the thyroid gland. In the toxemic series, the majority of the cases are traceable to coprostasis, or to some other form of intestinal auto-intoxication, the remaining cases being traceable to some infection, especially tonsillitis, rheumatism, typhoid, influenza, tuberculosis and syphilis. Pregnancy and parturition are not infrequent causes, owing mainly to the increase of toxic waste formed. When coprostasis prevails daily doses of sodium phosphate, or olive oil injections on retiring, six ounces being retained till morning, or large solution enemas are of great aid. Pancreatic atony is frequently present. Here dilute hydrochloric acid is necessary, to excite the duodenal cells, and secondarily, the pancreas. In some cases direct antiseptics are necessary and the avoidance of meat is important. In all forms of intoxication, whether of intestinal or infectious origin, one of the best antitoxic agents, is the neutral hydrobromate of quinine recommended by Forcheimer, five grains thrice daily. Beebe's serum and the various antithyroid serums also act as antitoxics. Absolute rest is imperative to restrain as much as possible the formation of wastes. In the neurotic series, central erethism is also produced with overactivity of the gland as a result. Fright, shock, sorrow, etc., produce it emotionally; uterine, ovarian, nasal, ocular, etc., disorders produce it reflexly. Here treatment of any organic disorder that may be present, bromides and valerian to reduce the undue sensitiveness of the centers, and the vasoconstrictors, including the neutral hydrobromide of quinine with ergotin to control the glandular hyperemia are very efficient. The



secretion of the gland itself may be inhibited by means of arsenic, and preferably in Fowler's solution. Rest and a meat free diet are as useful in these as in the toxemic cases to reduce to a minimum the antitoxic functions of the thyroid apparatus.

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**Angina Pectoris:** Geo. O. Jarvis, in the *Monthly Cyclopedia*, in considering angina pectoris, states that pain is one mode of expression of an exhausted heart muscle. The pain due to cardiac dilatation is of the same character as that due to distention of any other viscus, e. g., the urinary bladder, gall-bladder, stomach or intestines. The pain of angina is due to a viscerosensory reflex caused by attempts of the heart to empty its chambers of an accumulated and excessive amount of blood which stretches its walls and embarrasses its functions. The heart cannot pass into a state of prolonged contraction (tetanus) because as soon as it contracts its contractile function is in abeyance and it automatically relaxes into diastole. Morphin should be employed with great care in these cases, as its effect is to deaden the receptivity (sensitivity) of the reflex centers which preserve heart tone, and an overdose may and has caused sudden death from unrestrained distention of the heart or aorta. Atropin, hyocin and other substances derived from the belladonna group are absolutely contraindicated, because their effect is to dilate the heart and aorta, and to decrease their tone. The much-used combination of morphin, cactin and hyoscin so frequently serviceable in cases of a different nature, should by no means be employed if a loss of vagal tone is suspected. He concludes (1) all cases of angina pectoris which he has examined have shown marked dilatation of the heart and aorta with auricular fibrillation; (2) the cause has seemed to be arterial disease with high blood-pressure, and blocking of the coronary arteries. Associated with this is vagal hypotonia, which becomes more marked with the progress of the attack. (3) The blood-pressure is high at the beginning, but sometimes drops to less than 100 mg. Hg. at the close. During the attack there are marked variations in the blood-pressure, according as the heart is gaining or losing in its struggle to compensate. (4) The pains of angina pectoris are due to a viscerosensory reflex, and may be relieved by measures which increase the tone of the neuromuscular apparatus of the heart and aorta. (5) The most rapid and efficient method of treatment is concussion (or sinusoidalization) at the level of the seventh cervical vertebra in conjunction with the use of some drug, as pilecarpin to aid in the increase of vagus tone. (6) True angina pectoris differs only in the degree from the less degrees of cardiac embarrassment, such as so-called "pseudoanginas."

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**Antitoxins:** *The Medical Record* for April 11 quotes the Behring-Ehrlich Jubilee number of the *Deutsche Mediz. Wochenschrift*. Otto says of von Behring's serum that new researches only support the original contentions. The nurses and attendants in diphtheria wards are those who are exposed most to contagion, in fact, are never free from exposure. A large part of the antitoxin in daily use is therefore bespoken by adults. Carriers, including permanent excretors of bacilli, show a high blood content of antitoxin, convalescents are much lower. As a rule, a single diphtheritic infection seldom confers a high degree of immunity; to secure the latter several attacks are probably required. Healthy carriers sometimes go through masked or latent attacks of the disease, as shown by the increased blood content of antitoxin. Joseph states in regard to the prevention of anaphylaxis, that the fear expressed in this connection is without foundation, and that in any case, we have a complete set of preventatives for this state, including the production of antianaphylaxis, and the application of diphtheria ox serum. In case of an initial injection, notably for prophylactic purposes, the diphtheria ox serum should be used, so that if high-value horse sera have to be given

afterward anaphylaxis will be strongly combated. Conversely should a patient have been sensitized by horse antitoxin, the ox serum may be used for second injections. Every effort should be made to antagonize anaphylaxis, for this is the turning point in the general attitude toward serotherapy as a general method of treatment. A point naturally not touched upon in these jubilee papers is the somewhat hostile attitude of Ehrlich toward serotherapy in general, while admitting that several antitoxins have been phenomenally successful. In other words, Ehrlich believes that antitoxin therapy has reached its zenith, and that chemotherapy must take its place in the future. Von Behring is perhaps of the same opinion, as all his efforts in this field are in the direction of improving his antitoxin.

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**Rheumatoid Arthritis:** In *The American Journal of the Medical Sciences* for March, Ralph Pemberton treats of the metabolism, prevention and successful treatment of rheumatoid arthritis and his conclusions are: (1) Rheumatoid arthritis is apparently a preventable disease. (2) In most cases, except where the general health is undermined by great deformities and sequelae of long standing, the disease can be arrested. (3) For clinical purposes at least, it seems to belong in the category with diabetes and gout, in that there is in each case a limit of toleration for carbohydrates on the one hand, and proteids on the other. The role of the fats is not yet entirely clear, but they may prove to be borne analogously to the carbohydrates and proteids. (4) After arrest of the arthritis, the diet can generally be gradually increased until in some cases it differs but little from that of health. (5) Both hypertrophic and atrophic arthritis respond to these measures and their common etiology seems probable. (6) The presence of an intercurrent or possibly causative infection is not necessarily a contraindication to treatment and recovery may take place in spite of it, though such factors should be eliminated, if possible. *The large group of cases in which a causal source of infection cannot be found or removed lends itself particularly to these measures.* (7) Care is necessary to determine the highest level of metabolic equilibrium at which the arthritis will subside, and at or near that point the patient should be maintained. (8) While the general health improves with the subsidence of the arthritis, and though the patients seem to acquire a toleration for a larger dietary, the general principles described must be rigidly observed, or relapse will occur. (9) The disease is apparently not due to faulty elimination by the bowels or kidneys. (10) It is clearly not due to "intestinal putrefaction" so-called. There is no reason to exclude proteid in dietary treatment except in the sense described, and the ordinary carbohydrate food-stuffs are also clearly capable of causing the disease.

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**Senile Cases:** I. L. Nascher, in *The Medical Review of Reviews* for February, presents the therapeutic problems in *senile* cases. A few general principles in the treatment of senile cases may be taken as axiomatic. (1) A pathological change may be cured, but the cure will be a restoration to the norm of senility, and not to the norm of maturity. (2) A physiological change cannot be cured in the sense of restoration to the norm of maturity. Disagreeable symptoms, however, may be relieved. (3) Functional stimulation beyond the normal functional activity hastens degeneration. As to arteriosclerosis, if hastened through improper living, it may be retarded; if hastened through toxemia, it may be cured to the extent of the normal hardening. If it is, however, the normal senile hardening with diminished tonicity, and waste of the muscular fibers, and increase in connective fibrous tissue, nothing will restore the waste or loss of tone. Symptoms may be relieved, secondary effects may be lessened, or prevented, but nothing can be done to improve



the state of the vessels themselves. If the lessened activity of the liver undergoing senile degeneration, evidenced by fatty, light-colored and foul stools, without jaundice, the bile salts should be given to supply the deficiency of bile, instead of using hepatic stimulants, at the same time diminishing fat ingests. While the functions of the excretory organs and tissues are diminished in old age, it is rarely necessary to stimulate them unless profound pathological changes occur as in the kidneys. Pilocarpin, which is generally effective as a diaphoretic in maturity, should never be given in senile cases except in an emergency, as its diaphoretic effect is greatly diminished and its depressant effect upon the heart is greatly increased in old age. If given at all, it should be combined with strychnin. The uncertainty of the role played by the ductless glands in the economy is well illustrated by the senile spleen. The senile degeneration of the spleen is more marked than in any other organ, the weight being often less than one-half of the spleen of maturity. Yet the blood count in old age is the same as in maturity and feeding with spleen substance has apparently no effect upon the blood.

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**Digitalis:** In *The Indianapolis Medical Journal* for April, S. E. Earp states that there is much more to be learned concerning the therapeutic action of digitalis, and the same may perhaps be said of its physiological action. That animal experimentation is a safe guide for its use in the individual, he has felt in doubt. That under all circumstances it may be expected to raise blood-pressure, his clinical experience has not given sanction. In atheroma, apoplexy and conditions of the myocardium that would not warrant the use of a drug which would increase power, he has been cautious, and has endeavored not to increase the amount of blood returning to the ventricle in aortic regurgitation, by its use, yet in mitral defects when this condition of the aorta existed he has by its use bettered conditions rather than injured them. We recognize digitalis as a potent drug with possibilities of which we now know too little. We have accepted too much as truth from its action on the lower animals, and not enough from a careful study of the individual patient who has taken it. He predicts that the time is near when book knowledge relative to digitalis will require a marked revision. He quotes C. H. Lawrence's report on cases tried at the Massachusetts General Hospital, the conclusions being: (1) The effects of various drugs on the blood-pressure as determined by experiments on animals do not furnish reliable criteria for the administration of such drugs to man, since the effect may be quite different in the latter. (2) The pressure-raising effect of digitalis noted in animals and in healthy individuals does not occur, as a rule, when the drug is administered to individuals suffering from cardiac decompensation. (3) The cause of the cardiac decompensation does not appear to affect the action of the drug. (4) Digitalis preparations may be safely administered to patients suffering from arteriosclerosis, angina pectoris, or nephritis hyperdistension, if cardiac decompensation is present; under such conditions it rarely causes a rise in blood-pressure.

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**Cranial Tumor.**—Only a few cases of tumor of the middle cranial fossa involving the gasserian ganglion have been reported. W. A. Plummer and G. B. New, Rochester, Minn. (*Journal A. M. A.*, April 4), add one more to the literature. Special features mentioned are enlargement of the right cervical glands; constant dull pain in front of the right ear with paroxysms of pain involving the general distribution of the fifth nerve; absence of symptoms of the general intracranial pressure unless mental and occasional hebetude are to be so considered. Definite localizing signs were such as anesthesia, loss of taste on right anterior portion of tongue, partial paralysis of the extrinsic eye muscles with nearly complete ptosis and the pallor of the right optic disk and a large immobile right pupil. The tumor was removed and proved to be a small round-celled sarcoma.

### New and Nonofficial Remedies

Since publication of New and Nonofficial Remedies, 1914, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

**Trypsin, Fairchild.**—A powder consisting of the proteolytic enzyme of the pancreas, separated to a considerable extent from the other enzymes and constituents of the gland and of a definite strength. Trypsin digests proteins and neucleoproteins in slightly alkaline media. Fairchild Bros. and Foster, New York (*Jour. A. M. A.*, March 7, 1914, p. 776).

**Cerolin.**—Cerolin consists of the fats, cholesterins, lecithin and ethereal oil extracted from yeast by alcohol. Experiments have indicated that the laxative action of yeast depends on the fats and lipid constituents and that in skin affections these substances have the action of yeast itself. Hence cerolin, marketed in the form of cerolin pills, 1½ grains, is said to be useful in furunculosis, acne and in other skin affections. It is also said to be useful in habitual constipation, leucorrhea, erosions of the vagina and cervix and in similar diseases. Merck & Co., New York City (*Jour. A. M. A.*, March 21, 1914, p. 931).

**Refined and Concentrated Tetanus Antitoxin, Squibb.**—For description see New and Nonofficial Remedies, 1914. Marketed in the form of syringes containing respectively an immunizing dose and a curative dose. E. R. Squibb and Sons, New York (*Jour. A. M. A.*, March 21, 1914, p. 931).

**Typhoid Vaccine (Immunizing).**—For description of typhoid vaccine see N. N. R., 1914, p. 259. It is prepared according to the method of the U. S. Army Laboratory. Marketed in ampule and syringe packages each containing 500 million, 1,000 million and 1,000 million killed typhoid bacilli. H. M. Alexander & Co., Marietta, Pa. (*Jour. A. M. A.*, March 28, 1914, p. 1014).

Since publication of New and Nonofficial Remedies, 1914, the following articles have been accepted for inclusion with "N. N. R." Those accepted during the current month are made prominent by the use of capitals.

**B. B. Culture.**—A pure culture of *Bacillus Bulgaricus* marketed in bottles containing 90 cc. Intended for use in intestinal indigestion and for the interocolitis of infants. B. B. Culture Laboratories, Yonkers, N. Y. (*Jour. A. M. A.*, March 28, 1914, p. 1014).

H. M. Alexander & Co.: TYPHOID VACCINE, IMMUNIZING.

B. B. Culture Laboratory: B. B. CULTURE.

Farbwerke Hoechst Co.: Amphotropin.

Fairchild Bros. & Foster: Trypsin.

Hoffmann-Laroche Chemical Works:

THIOL, SYRUP THIOL, ROCHE.

Hynson, Westcott & Co.:

Phenolsulphonephthalein, H. W. & Co.; Phenolsulphonephthalein Ampoules, H. W. & Co.

Merck & Co.: CEROLIN.

H. K. Mulford Co.:

Anti-Anthrax Serum, Mulford; Antistreptococcus Serum Scarlatina, Mulford; Disinfectant Krelon, Mulford; Salicylos; Staphylo-Serobacterin; Strepto-Serobacterin; Typho-Serobacterin.

E. R. Squibb & Sons:

TETANUS ANTITOXIN, SQUIBB.

Thiol and Syrup Thiol, Roche readmitted to N. N. R.:

The advertisements of Thiol and Syrup Thiol, Roche, to the public in the form of Sirolin having been abandoned here and abroad, the Council has readmitted Thiol and Syrup Thiol, Roche, to New and Nonofficial Remedies (see above).



## The Academy of Medicine of Cleveland

### ACADEMY MEETING

The one hundred and ninth regular meeting of the Academy was held at 8:00 P. M., Friday, April 17, 1914, at the Cleveland Medical Library, the President, J. J. Thomas, in the chair.

The program follows:

Walter B. Laffer presented a case of juvenile dementia. A boy aged 18, the result of a fourth pregnancy, the other three having resulted in miscarriages. His father, a sailor, gave the history of several venereal infections. There are three younger children in the family, all in good health. The boy is under the normal size, has always been backward and unable to get along in school. Preceding his attack he was unable to hold a job for any length of time. No marked mental symptoms appeared until last October. He has a saddle nose and a chronic nasal discharge which has persisted since infancy; his teeth are suggestive of the typical Hutchinson teeth. He assumes a certain standing posture of the body and persists in it for hours at a time, responding to no ordinary stimuli. He exhibits no control over the bodily discharges. He is unable to tell the months of the year, the days of the week, or the date of the month; the simplest mathematical problem is beyond his power. The Wasserman of both the blood and spinal fluid, the Noguchi and Lange tests are all positive. The spinal fluid gives a cell count of 56.

This case is of special interest not only on account of its rarity but also because in this instance of its late development. These cases usually give a history of backwardness before puberty at which time the dementia usually makes its appearance.

Papers presented:

1. **The Mating of the Unfit**, By T. S. McWilliams, D. D., Pastor of Calvary Presbyterian Church, Cleveland.

The interest of the Committee on Eugenics of the Federated Churches is at present concerned with but one phase of eugenics—the negative phase it may be called. While we realize that there are many aside from those who are infected with venereal disease whose mating is a menace to the State and to Society, yet at this time we would confine our work and make our start toward a better citizenship by prevention of the marriage of those persons who are infected with the venereal disease. It is time to realize that like produces like and that there is an obligation resting upon Society to realize that the fact, that the sins of the father are visited upon the child, cannot be ignored and that it is the greatest folly not to prevent the marriage of the *unfit*.

About 3 per cent of the total population of the United States are delinquent or dependent and the annual cost to the public is above \$100,000,000. In Ohio, alone, the annual expense is more than \$4,500,000 which is half of the State's revenue. The labor of the Clergy has been long and hard in the cause of the poor, the degraded, the degenerate, the lame, the halt and the blind, but now we are tired of dealing with the effects, and we ask that the cause of this wretchedness be struck at its root. These misfits are not the visitations of Providence. Ninety-five per cent of the ophthalmia neonatorum and 80 per cent of the gynecological operations are due to the gonococcus. The sexual immorality of young men is general and upon good authority we are told that 80 per cent of the young men are infected with the gonococcus before 35 years of age. Their crimes are visited upon innocent women and unborn children.

The Eugenics Committee has carried out a campaign of education with the help and advice of Dr. Henry L. Sanford; ministers of churches and their congregations have been addressed and every effort has been made to arouse public opinion upon the subject. Marriage has for its object more

than the happiness of the individual, it is an institution for social welfare and we must think of the children and the society of the future.

Three years ago, Dean Sumner of Chicago made the statement that he would join in marriage none who could not furnish a clean bill of health. It is proposed that the Ministers of the Federated Churches of Cleveland take the same stand. If it should prove possible to enlist these 200 ministers of Cleveland in this cause it would be a step in philanthropy more advanced than that taken by any other city.

There is no profession, not excepting the ministry, that dispenses so much practical and helpful philanthropy as the medical profession and we are here for your council, advice and cooperation in this movement toward citizenship and social welfare.

## 2. Premarital Examination, by Winfield Scott Hall, M.D., Professor of Physiology, Northwestern University Medical School, Chicago.

Attempts to change time honored and long established customs and habits of thought always meet with many complications. In reviewing the fundamental principles of our government we find that although the constitution vouchsafes to each individual the inherent right of "life, liberty and the pursuit of happiness," nevertheless the activities and liberties of the individual are limited by law for the welfare of the community, of Society, and of other individuals. Although these limitations as they have appeared from time to time have seemed at the moment to deprive mankind of a cherished, personal liberty without which happiness could not be preserved, it has usually happened that the individual happiness has been increased, health has been improved, and the life of the individual has been lengthened and made more fruitful; as for Society, the conditions have been incomparably improved. Examples of this are to be found in the prohibition law of Kansas, which has wrought so much economic, hygienic and social good in that state; in the compulsory quarantine and vaccination acts throughout our country.

These same principles can be applied to the checking of the danger to society due to the *venereal* diseases, for these infected persons constitute a social danger against which Society must protect itself. When we consider how short-lived is the happiness of the man who has infected his wife and children, and how certain to come is the tragedy of such an infection, we recognize that legal interference with the marriage of this man, is really a protection of him against the fall of the ax that he, himself, holds. In the light of the principles set forth, Society has the right to prohibit the marriage of those persons whose union would surely menace social welfare and decrease health and happiness; and if the proposed marriage promised to bring a train of disease, degeneration, degradation and death, then the hesitation on the part of Society to prevent the marriage is *suicidal*.

In the ideal and final adjustment of this matter, Society will demand that the premarital examination will take account, not only of the venereal diseases, but of all the other serious impairments which would affect succeeding generations.

It is possible to classify Society, physically, intellectually and morally and we find that the position of the individual in these classifications corresponds throughout. The man of good physique, constitution and health, is of good mentality and is good, as well, morally. From the highest type or the ideal member of society we have a descending scale grading individuals, intellectually, as High, Median High, Median (into which class the great bulk of the people fall), Median Low, Low, and the Lowest type, that of the idiot. It is these types below the Median that constitute the real menace to Society, and the mating of which fill our institutions for the poor, the deformed, the blind and the insane, with degenerate children; and which mating it is the business of Society to prevent. A powerful example of this point is found in the Kalikak family: Martin K. at the time of the Revolutionary War seduced a



feeble-minded girl; from her illegitimate son there descended 480 persons, of which number it has been possible to trace some 250. Of these but 46 have been found to have been normal, the balance living lives of shame, degeneration degradation and pauperism, and costing the state millions of dollars. After the war Martin K. married a normal girl of good family and from this union there have descended 493 individuals, all but 3 of whom have been normal, and among whom have been men eminent in every walk of life; this branch of the family has produced millions of dollars for the state.

Recent legislation in many states upon Premarital Examination has been largely a failure; the reason for this is that legislation has been attempted before the public is sufficiently well informed, and moreover the laws as they have been framed have not been practicable and workable. The plan presented by the Cleveland Eugenic Committee of the Federated Churches is the ideal way for this great work to be carried on; we must have education before legislation. After a time the public will demand that laws be passed. It will be necessary for the State to establish in every large city and at least in every county, laboratories for the performance of the various tests of the blood, etc. The expense of making these tests should be paid by Society since it is for Society's good that they are to be made. Women as well as men should be examined, for while it is true that the majority of infections are transmitted from the male to the female, it is certain that they are sometimes passed in the opposite direction.

It will be difficult to arouse public opinion in this great movement, but after the people have been educated they will demand that laws shall be passed, making Premarital Examination a necessity. Moreover, it has happened already in Chicago that persons who are to be married by ministers who do not require a health certificate, nevertheless, present themselves for examination for the reason that they want the satisfaction of knowing that they meet the right health standard.

Rev. E. H. Tippetts was asked by the Chairman to open the discussion. He rose to say that he had been much interested in listening to the papers that had been read, and that while he was vitally interested in the subject, yet he had nothing to add to what had been so well said; he wanted to hear the medical men discuss the papers.

Rev. Minot O. Simons said he was glad to push along this important movement; he was gratified because the Academy of Medicine had signified its approval and support. This movement requires much agitation, much education. It is an epoch-making business and there is nothing that could work so much good for Society. He had known of many sad instances of the awful ruin worked by the venereal infections, and is certain that the facts cannot be disputed; he advocates any workable, practicable plan that can be adopted.

Rev. Worth Tippy expressed the hope that a vigorous attack would be made upon the great evil, that the committee appointed by the Academy of Medicine could meet with the Eugenics Committee of the Federated Churches, decide upon a definite plan of action and then carry to the City authorities and push the movement through on a practicable basis.

M. J. Lichty, M. D., said that he had talked to boys upon the subject of the Black Plague and believed that it is necessary to educate the child along the lines of procreation; it is certainly a great question as to how best to do this, but it must be done. He wished to correct the wrong idea so prevalent among young men, that the act of copulation is necessary to health. The place to teach the child about sex is in the home and in the school. He considered that one reason why this is so difficult to do in the home is because of the habit of loose talk and because of the fast pace at which we live.

Rev. W. F. Rotherberger indicated that while this particular movement had begun in the Ministry, yet the facts of the problem had come through the work of the Medical Profession and that it was to this

profession that they had come for advice. He believed that they had before them a plan that was workable. The Eugenics Committee had tried to take some legal steps but had found that this would not be practicable at the present time, education being the first essential. Some of the ministers are hesitating to take the stand of Dean Sumner of Chicago, and he believed that in part this might be due to the fact that even if the ministers all took this action its effects would not reach the large number of marriages performed by the Justice of the Peace, and in just so much would it be defeated. What he wanted to see however was a good conservative growth in this movement that would endure, and one that was backed by the medical profession.

Rev. T. S. McWilliams expressed the hope, in closing, that the mills would not grind too slowly, that there would be sanity and good judgment in every step that was taken.

W. S. Hall, M. D., in closing, thought that Cleveland was making the right sort of a start and hoped that the impetus given this movement would not lag; that the city had attracted attention everywhere because of its advanced plan of philanthropy, and that the city in making this test for itself and proving its practicability would certainly insure the adoption of similar plans elsewhere.

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## OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The seventy-first meeting of the section was held at the Cleveland Medical Library, on Friday evening, March 27th, at eight o'clock.

Cases presented.

S. Monson presented a boy with thickened eyelids, apparently trachoma without any symptoms. It was generally agreed that it was a case of trachoma.

W. C. Tuckerman thought this case should be treated by massage with a glass rod.

S. S. Quittner presented a case of retinitis pigmentosa in a negro.

Program of the evening as follows:

### 1. Report of Four Atypical Cases of Mastoiditis, by D. A. Prendergast.

Case 1. Male, aged 28. History negative. Dull pain in the ear for a month. Pain sometimes sharp, but sometimes absent. Health failing, is languid, and perspires on exertion. Night sweats. Physical examination negative. Patient is neurotic. Nose shows slightly deflected septum, enlarged turbinates and small mass of adenoids. Throat and ear negative. Labyrinth normal. Hearing normal and equal in both ears. No tenderness over mastoid. Eustachian tube on one side partially occluded. Posterior ends of inferior turbinates excised and adenoids removed, followed by improvement in health. One month later rise of temperature and chill. Examination negative except slight tenderness over mastoid. Simple mastoid operation. Entire mastoid necrotic and extirpated with ordinary curette. For ten days after operation, temperature curve was suggestive of pyemic infection, then followed convalescence and uninterrupted recovery.

Case 2. Girl, aged 20. Dull, deep-seated pain in ear for two weeks. Examination of ear, nose and throat negative, except slight congestion along hammer handle in affected ear. Slight tenderness over mastoid. Temperature normal at first but after a week's observation began to rise one degree in the evening. Pain in mastoid region. X-ray showed no



pus. Normal convalescence. After three weeks, pain in other ear. Paracentesis, inflation of Eustachian tubes, hot and cold applications of no avail. Symptoms similar to involvement of first ear. Similar operation with about the same findings. Complete recovery.

This is probably a case of infection by streptococcus mucosus capsulatus. In the second case there was at no time any sign of involvement of the middle ear.

Case 3. Baby, aged 8 months. Three weeks ago had cold in the head. Slow recovery. A week ago swelling and redness back of the right ear. Baby poorly nourished and anemic. Temperature 101. Physical examination negative. Ear, except for slight congestion of membrane, normal. Incision in mastoid, pus in antrum. Complete recovery.

Case 4. Boy, aged 4. Severe coryza three weeks ago with high fever and earache. Discharge from ear followed by relief of pain. A week later return of pain for three days followed by swelling of scalp over frontal and parietal region. Examination of ear revealed large perforation over mastoid. No tenderness over mastoid. Incision into fluctuating mass and over mastoid. Large amount of pus and perforation of mastoid cortex. Simple mastoid operation. Some pus in antrum, but the rest of antrum extremely compact. Subsequent course uneventful.

W. H. Tuckerman said that one must always consider the possibility of the clearing up of the middle ear with the mastoid involvement continuing. He had seen several such cases with few symptoms.

J. M. Ingersoll called attention to the rarity of a double primary mastoiditis as reported in case 2 of the series.

## **2. Report of Clinical Eye Cases, by W. E. Bruner.**

Case 1. Young man, aged 20. Right eye inflamed three days. Iritis with posterior synechia and deposits on the posterior surface of the cornea. Cause unknown but said to be due to exposure to cold. Local treatment and salicylates given with no resulting improvement. Mercury and potassium iodid gave no result. Teeth are apparently unaffected but have many gold crowns. X-ray plates showed several tooth abscesses. Extraction of teeth followed by complete recovery from iritis. X-ray plates were presented.

W. C. Tuckerman had patient with amblyopic eye. Patient gave history of ulcerated tooth and claimed that vision of eye failed after the extraction of the tooth. Fundus normal, slight optic atrophy.

C. W. Way had patient with iritis and also history of syphilis. Anti-luetic treatment of no avail. Extraction of some old tooth roots followed by prompt recovery.

Case 2. Child of six. Syphilitic-Wasserman positive. Obstructed tear duct with pus. Under light anesthesia, canaliculus cut and probe passed. After operation drowsiness and vomiting. Urine showed acetone and later albumin and casts. Some improvement upon proper treatment. Later new attack and death, with no autopsy allowed.

J. M. Ingersoll said we must never forget the element of risk in an anesthetic, especially in our line of work, in which the operation itself is usually without danger. Patient should always be told of this element of risk.

## **3. An Experience in Dealing With the Ohio Industrial Commission, by W. C. Tuckerman.**

The paper referred to the question of special eye examination to determine the degree of permanent partial disability in cases of total or partial loss of sight. The Commission had specified a fee of \$10.00 for such examinations and later reduced it to \$5.00 without consulting the physicians, stating that the latter sum had been found to be the proper fee for such work. Doctor Tuckerman thereupon sent the following questionnaire to seventy-five of the leading oculists in the state:

"1. Have you been consulted by the Industrial Commission of Ohio regarding the fee to be allowed by them for special eye examination?"

"2. These examinations are to be made by the examiner only in cases sent especially to him by the Commission for determining the amount and permanency of the disability. Hitherto these examinations have been made by various men not especially appointed by the Commission and a fee of \$10.00 was allowed for each examination. We are informed that they now allow but \$5.00. Would you be willing to undertake this type of examination at the latter fee?"

"3. Would the fact, that all such eye injuries in a definite territory were to be referred to you if you were a special examiner for the Commission, offset the reduction in fee?"

Fifty-four answers were received and the replies were overwhelmingly negative. Accompanying them were many vigorous expressions of disapproval of the methods of the Commission.

A. W. Binckley, Chief Medical Examiner of the Commission, who was present at the meeting answered some of these criticisms. A lively discussion followed, participated in by most of the members present.

J. M. Ingersoll then called the attention of the section to the fact that Miss Howell of the Boston School of Lip Reading was coming to this city to establish herself and give lessons to patients with defective hearing.

## CLINICAL AND PATHOLOGICAL SECTION

The one hundred and first regular meeting of this section was held Friday, April 3, 1914, at 8:15, at the Cleveland Medical Library. The Chairman A. W. Lueke, M. D., in the chair.

The program follows:

### 1. The Abderhalden Serological Test for Pregnancy. A Preliminary Report of 150 Cases, by W. C. Stoner and A. J. Skeel.

The serological test for the presence of pregnancy as suggested and established by Abderhalden has received world wide recognition, and it is the purpose of this paper to give briefly points on technique, call attention to possible causes of error and report the observations made on the blood sera of 150 cases.

This test has to do with the ferment that is produced by the body due to the presence of the syncytial cells in the circulating blood during pregnancy; this ferment acts on these cells reducing them to a simple albumin molecule. The specificity of this ferment is not definitely established for it is known that blood sera from malignancy fibroid tumor and pelvic inflammatory cases may give the reaction. This ferment is destroyed by heat at a temperature of 56° C.

The apparatus for the test consists of dialyzers which are impermeable to serum albumin but permiable to a lower type of protein such as the peptones and amino-acids; those of Schleicher and Schull, No. 579-A are the most satisfactory. Blood is secured as for the Wasserman Test. In dializer No. 1 is placed the antigen (a piece of fresh placenta freed from all free-protein) and 1½ c.c. of blood serum. In dializer No. 2 is placed the same factors save that the blood serum is first inactivated by heating above 56° C. to destroy the ferment. The dialyzers are placed in glass containers in which are 20 c.c. of distilled water. Both blood and water are overlayed with toluene to prevent contamination the containers are placed in an incubator for 16 to 20 hours at 37° C. At the end of this time the water, which is now the dializate, is tested with ninhydrin for the presence of protein. The control tube must always react negatively; if it is positive it indicates either that the technique was faulty or that the blood contains a dializable protein of a very exceptional character.

We have learned that this test demands more absolute cleanliness of glass-ware and a more careful handling of bloods than is necessitated in Wasserman and other serological work. Our difficulties consisted in



positive reactions in non-pregnant conditions, and were due to the use of old bloods, the failure to use toluene in a few tests, and the use of glass-ware that was not absolutely clear. Of 78 cases in which a clinical diagnosis of pregnancy was established only one reacted negatively. Observation has shown that positive reaction may be found as early as the second week of pregnancy and not later than three weeks subsequent to delivery.

Of 68 non-pregnant cases, eight were clinically diagnosed cancer, six of which gave a positive reaction to both placental and cancer tissue and two gave a negative reaction to both. Two cases of fibroid of the uterus gave a positive, and one gave a negative reaction. The non-pregnant cases included a variety of clinical conditions aside from cancer, fibroid, and pelvic inflammatory cases, all of which gave a negative reaction save four cases in which the control tube gave a positive reaction as well indicating that there was faulty technique. Four urines of pregnant cases gave a positive. Eleven cases were syphilitic and gave a positive Wasserman, but the Abderhalden was negative. Eclampsia and threatened eclampsia cases showed positive reaction of unusual intensity.

Conclusions. 1. That the test is delicate and requires the skill of one especially acquainted with serological work and great care in ruling out possible sources of error.

2. That, barring a few clinical conditions that may give the reaction, the test is as reliable as the Wasserman for the determination of syphilis.

3. That its greatest diagnostic value will be in that type of cases where it is clinically difficult to differentiate between a pregnant and a non-pregnant condition, and in which the test reacts negatively barring out the likelihood of pregnancy.

We wish to thank Dr. A. E. Robertson and Dr. C. T. Hemmings for the help given in carrying on the work as well as a number of physicians who have furnished us with material.

A. J. Skeel, in opening the discussion said, that many dubious reports had been given on this test and that many experimentors who early reported negative results have since discovered that their difficulties lay in faulty technique. Much work yet remains to be done; the specificity of the reaction in all cases is not yet established. He said that he had recommended curettage on the strength of a negative reaction, and added that herein lay one great value of the test.

J. J. Kurlander asked if the test would show a negative reaction in the case of pregnancy with subsequent death of the fetus.

Tom Shupe asked how many of the eight cancer cases which gave a positive reaction were cancer of the uterus; and if cancer of the uterus gave a more strongly positive reaction than that given by cancer elsewhere?

N. Rosewater asked if the test gave a positive reaction in the case of an ectopic pregnancy?

W. C. Stoner in closing said, that they had not yet made observations as to how early in pregnancy the test would show a positive reaction. Work abroad has shown that in case of the death of the fetus the test becomes negative after the lapse of a period of time just as in the post-partum cases, i. e., three weeks. All of the eight cancer cases were cancer of the uterus. The positive reaction obtained in the cases of the fibroid may be explained on the basis of a group reaction to protein. Extra-uterine pregnancies can be diagnosed by means of the reaction and have been operated on the strength of the same.

(This paper will appear in full in the June issue of the Journal)

2. Cardiospasm, with the Report of Two Cases, by J. D. Osmond.

Cardiospasm represents a condition in which there is a spasmodic constriction of the cardiac orifice of the esophagus, causing pain and

dysphagia. As the condition becomes chronic there is a gradual dilatation of the esophagus.

These cases were first found at autopsy in England in 1874. The first cases were diagnosed clinically and reported by Meltzer, in Germany in 1886. Up to 1904 only about 100 cases had been reported. Several hundred cases are now found in the literature, the largest series (91 cases) being reported by Plummer.

Secondary cardiospasm is known to occur in cases where there is a pathologic change in the esophagus or adjoining part of the stomach. The cause of primary or idiopathic cardiospasm is speculative, therefore unknown. It is thought to be of nervous origin and may occur in 1—general neurosis; 2—degenerative changes of the nerves; 3—toxic injuries; 4—Autotoxically, as in gout. According to Plummer the age of the patient varies between 17 and 58 years; 22 females and 18 males. Eppert reports in March, 1914, that of 70 cases the age varies between 20 and 60 years; 21 females and 39 males.

Primary cardiospasm, with which this paper concerns itself is cardiospasm in which no anatomical lesion can be demonstrated. There is an incoordination of the swallowing act. When food reaches the cardia the latter does not relax and food is retained in the esophagus. When dilatation is established no spasm of the cardia is necessary to keep the esophagus dilated for the reason that the walls bulge down and exert a valve-like pressure at the sides. Cardiospasm has been known to occur suddenly following the reading of a letter containing bad news. The consensus of opinion seems to be that the cause of this condition is an upset of the coordination of the nerve muscle mechanism that causes food to be held up at the cardia.

Cardiospasm begins with the acute form and lasts from a few hours to a few days. If the patients takes food there is a feeling that something has remained in the esophagus, a mild choking sensation and some dyspnea. If the attack lasts several days or more the esophagus dilates leading on to a great dilation of the lower half. After this there is at times regurgitation of food. The essential conditions of a chronic case are 1—a long history extending over 10 to 20 years; 2—the occasional regurgitation of food and difficulty in swallowing; 3— gradual loss of weight.

Diagnosis of the acute condition is made from the history of repeated attacks of dysphagia and a choking sensation after taking solid food, in which relief was sometimes afforded by drinking water.

The diagnosis of the chronic case with dilation of the esophagus depends upon the history, the character of the obstruction at the cardia, and the ruling out of those conditions which may cause a secondary cardiospasm. The clinical features of the case are assisted by X-ray examination and the use of the esophagoscope. The typical radiograph shows the esophagus to be in the shape of an inverted cone with smooth walls, esophagoscopy reveals the character of the lumen and any lesion or benign stenosis can be easily appreciated. An essential feature in the diagnosis in the case with which large bougies can be passed through the cardia. Another important sign is the delay or absence of the swallowing sound at the cardia. The reaction of the contents of the dilated esophagus is also important.

The acute condition is relieved by nerve sedatives and bougies. However, the condition returns. The relief of chronic cardiospasm with dilated esophagus is a 20th century method. Mikulicz in 1913 performed an operation in which he stretched the cardia with his fingers after opening the stomach. Clinicians soon devised methods of dilating from above by passing bougies through the cardiac orifice and overstretching it. This was devised by Plummer; the patient swallows a perforated shot to which is attached a silk twist. After about six yards of the twist has entered the digestive tract it serves as a very efficient guide for the introduction of bougies or dilators. The degree of stretching that can be



accomplished safely is governed by the evidence of pain, and the amount of pressure necessary to give maximum dilation. The stretching must be sufficient to paralyze the sphincter and must last about two minutes. The result of the treatment is marked relief from all symptoms; solid food may be taken and a gain in nutrition begins at once. Occasionally a second or third treatment is necessary.

Case 1. Mr. R. P. C., age 24 years. Complained of difficulty in taking food for past four years. In the beginning he had an uncomfortable feeling in the anterior thorax which was relieved by taking water. His trouble progressed and one and one-half years from the onset he began to regurgitate food sometimes every day, sometimes every several days. Finally he learned to take a deep breath and compress the thorax and force the esophageal contents into the stomach. In March, 1912, he entered Lakeside Hospital and was treated for one week with the Bunts dilator up to size 36 F. This afforded temporary relief, but he had a recurrence of the spasm three days after leaving the hospital. He came to the office in August, 1913. Examination revealed a dilated esophagus holding eight ounces of food. Large quantities were being regurgitated every second or third day. The esophagus was emptied and a large dilator was easily passed into the stomach. On September 1, 1913, the Lerch dilator was used and the cardia was overstretched to a distance of  $3\frac{1}{2}$  cm. diameter. The patient experienced no pain and had complete relief for a month and gained 11 pounds. There was later a slight return of symptoms and the cardia was again dilated. He has since gained 24 pounds and feels perfectly well.

Case 2. Mr. S. E., aged 21 years. Dysphagia for two years. Choking sensation upon taking food. Upon two occasions he had attacks of pain through the sternum, radiating through to the back and lasting but two or three minutes. Twice he had had immediate regurgitation at meal time. Examination showed a slightly dilated esophagus and difficulty in passing a stomach tube. A test meal gave the normal proportion of acids in the stomach. The Xray showed a moderately dilated esophagus with smooth walls; a peristaltic wave was seen in the esophagus—its effort to empty itself through the narrowed cardia. The cardia was stretched to the diameter of  $3\frac{1}{2}$  cm. The patient returned to his home on the second day and a letter of March 20, 1914, reports him as feeling absolutely fine.

Opening the discussion, N. Rosewater said he thought that instrumentation was the last thing to be used in these cases as a means of diagnosis. He would depend upon the Xray rather than the esophagoscope. He referred to a case that he had treated, a young man, 25 years of age, who showed symptoms of cardiospasm due to nervous strain. His case was progressing nicely with the use of bromides and rest when he went to another physician and subjected himself to the esophogoscope examination. Blood was seen and a diagnosis of malignant growth was made. However, the young man returned and died shortly after, not of a malignant growth, but of a septic pneumonia. What happened during the examination is evident. At the present time he is treating a young lady who has cardiospasm and regurgitates food. She is getting well on bromides and rest.

J. Arthur Jones, in referring to the speaker's explanation of primary cardiospasm as of neurotic origin, quoted Kohnheim's statement that neither cardiospasm or pylorospasm can occur without there being some lesion, even as much as a fissure at the part affected. He said that in as much as this statement was made several years ago it might be that more recent investigation had showed that it might occur independent of any lesion, and he asked the writer to state if possible any cases where no lesion might be demonstrated in the case of cardiospasm.

N. Rosewater rose to say that in the cases presented it did not seem

possible that there could have been a lesion present, for the reason that the symptoms disappeared upon simple dilatation.

George F. Thomas cited a case where the cardiospasm was secondary and due to reflex stimulation caused by gall stones. He added that these cases should have the benefit of an Xray examination. The sharp, clear outline and visible peristalsis make a clear diagnosis of cardiospasm. An irregular outline indicates tumor mass. When there is a question as to whether the irregular outline is due to peristalsis or to tumor a series of plates should be made.

F. C. Herrick asked if Doctor Osmond had found in the literature any cases where the silk twist used in the treatment outlined by him had caused the patient any subsequent trouble.

J. D. Osmond in closing said that in the proper use of the esophagoscope there was no danger to the patient. The instrument is introduced while vision is maintained and unless there is a lumen ahead it is not advanced. The instrument should not be forced into the esophagus. In the case of malignant growth of the esophagus, however, bleeding is unavoidable.

As to Kohnheim's statement, as far as he knew, this still held good. Martin says that persistent search would reveal a lesion in all of these cases. The term "Idiopathic Cardiospasm" is used for those cases where it is impossible to demonstrate any lesion.

In reply to Doctor Herrick's question, he said that he had never heard of any case where the silk twist caused subsequent trouble. In one of his cases he had used several spools of the silk and the patient had shown no symptoms of obstruction or other abdominal trouble.

(Doctor Osmond's paper will appear in full in the June issue of this *Journal*.)

## EXPERIMENTAL MEDICINE SECTION

The seventy-fifth regular meeting of this section was held at the Cleveland Medical Library, Tuesday, April 14, with the chairman, David Marine, in the chair.

The program was as follows:

**1. Parathyroid Hypertrophy and Hyperplasia in Fowls, by David Marine, from the H. K. Cushing Laboratory of Experimental Medicine, Western Reserve University, Cleveland.**

Physiological overgrowth of the parathyroid glands in mammals has been very rarely observed. Erdheim (1), Bauer (2) and Strada (3) have recently described its occurrence in man in association with some cases of osteomalacia. Three instances of undoubted general parathyroid enlargement in bitches in association with multiple lactations have come under my observation.

In the reports of partial removal and of transplantation of mammalian parathyroids, particularly in dogs, one of the most characteristic features has been the absence of any noteworthy compensatory enlargement of the remaining portion within the time limits in which other tissues, like the thyroid, heart muscle, kidney, etc., react to artificially induced insufficiencies.

In the course of some experiments with the thyroid gland in fowls in 1910, I observed several instances of marked enlargement of the parathyroids independent of the changes occurring in the thyroid glands. These parathyroid changes were found in fowls which had been fed with maize and wheat for periods of 2 to 6 months. The observations were repeated in 1911, 1912 and 1913 with similar results.

Since calcium temporarily relieves the symptoms of parathyroid tetany in mammals, and since maize and wheat contain very little calcium, it was thought possibly the parathyroid overgrowth might be a result of a calcium deficiency, and if this was so, calcium might exert some protective action against parathyroid overgrowth.



Calcium hydroxid, calcium lactate, calcium carbonate (as chalk and crushed oyster shells), magnesium carbonate, strontium carbonate, sodium citrate, sulphuric acid, neutral sulphur and sodium hydroxid have been given in the diet of maize and wheat for periods of one, two and three months. One hundred and ten fowls have been used. No detectable inhibition of the parathyroid overgrowth could be detected in the fowls given magnesium carbonate, strontium carbonate, sulphuric acid, neutral sulphur, sodium citrate or sodium hydroxid—the growth being marked as in the controls. On the other hand, those given sulphuric acid and neutral sulphur had more marked parathyroid enlargements and softening of the bones than those given the other chemical substances or the controls. In those fowls which had received calcium there was uniformly less parathyroid overgrowth; in those given calcium hydroxid and calcium carbonate it was barely detectable; while in those given calcium lactate there was moderate enlargement. No differences ascribable to sex could be determined.

These observations suggest: (a) that the parathyroids of birds are more susceptible to overgrowth than those of mammals; (b) that calcium offers some protection against overgrowth; and (c) that the parathyroids (as MacCallum has suggested) are intimately associated with the function of calcium in the complex of body metabolism and nutrition.

1. Erdheim, J.: Ueber Epithelkörperbefunde bei Osteomalacie. Sitz. Ber. Akad. Wiss., 1907 Bd. CXVI, Abt. 3, 311-370.

2. Bauer, T.: Morphologische Studien über die Beziehungen der Epithelkörperchen zum Kalkstoffwechsel. Frankfurt. Zeitschr. f. Path., 1911, VII, 23.

3. Strada, F.: Le paratiroidi nell' osteomalacia e nell' osteoporosi senile. Pathologica Anno I, 1909, 423-437.

T. Wingate Todd, in opening the discussion, said that several years ago he had been called in to determine the nature of an obscure disease which was affecting a collection of rheas and ostriches. These birds were receiving a diet of pure maize. At that time, however, the parathyroids were not taken into account. They seemed to suffer from an inability to move about and from loss of appetite. The speaker was asked what symptoms had been noted in the fowls under observation in his experiments.

David Marine in reply said that in connection with the disease of the rheas and ostriches he would think of the possibility of the beri-beri of Funk.

The fowls observed by the speaker in his experiments were not reduced to emaciation or weakness. Their coats, however, became somewhat shabby, and the skin dry and flabby. They showed a slight loss of weight and this only at the end of a number of months.

## **2. Lantern Slides Showing the Comparative Anatomy and Development of the Nose, by J. M. Ingersoll.**

Starting with the whitefish, and continuing up through the frog, turtle and intermediate types through the ape, chimpanzee and man, the speaker showed that in animals below the ape, the accessory sinuses of the nose are actively functioning parts. The turbinate tissue in these animals is enormous, as strikingly exemplified in the seal and to a lesser extent in the bear.

In the ape and chimpanzee and man, however, the amount of turbinate tissue is greatly reduced, and in the latter indeed it is reduced to a minimum.

The speaker stated that he viewed the accessory sinuses in man simply as remains of what were in the lower animals functionally active structures.

T. Wingate Todd, in opening the discussion, corroborated the slides which showed the vast amount of turbinate tissue in the seal. He called

attention to the fact that the turbinate tissue of the seal is extraordinarily like that of the bear.

David Marine, in discussion, asked the speaker how the extraordinary amount of turbinate tissue in the seal could be accounted for?

J. M. Ingersoll in reply stated that the maxillary turbinate is distinctly respiratory. The seal and the walrus live in extremely cold climates and thus the great mass of tissue serves to warm the respiratory air.

### 3. Differentiations Between Alveolar Air and the Dead Space, by C. F. Hoover.

After a man inspires, he has a certain amount of air in his respiratory tract which is not exposed to the respiratory membrane. This air is the first given off in expiration and is contained in what is functionally known as the dead space. However, the alveolar air certainly mixes with a variable amount of dead space air so that only the last part of the expired air is pure alveolar air.

In the Haldane method a sample of the alveolar air is taken at the end of a forced expiration. After determination of the volume of the expired air, and the carbon dioxid content of the same, the carbon dioxid content of the last part of the expired air (the alveolar air) is estimated. Finally, the volume of the alveolar air is arrived at, as also the volume of the dead space.

The difficulty with this method is that the subject is made to breathe five minutes and the results are determined by the use of several specimens of alveolar air taken at different times. Considerable variation results. It is better to take a single specimen from a single breath. At the end of expiration clamp the tube at the top and bottom and the specimen is secured. With this method one can naturally apply the same formulae as with the Haldane method proper.

Haldane found with this method that the dead space varied from 150-180 cc. Breathing through a meter requires better ventilation than normal so that the dead space is found to be very large. The same thing is found to hold in exercise. The reason for this is that there is diminished friction.

There is a likelihood that the boundary between alveolar air and the dead space is not hard and fast, but is variable. This or some other explanation would seem necessary to explain the wide discrepancies observed in the results from the Haldane method. There may be zones of alveolar air within the alveolar space. There may not be a uniform distribution of carbon dioxid within the alveolar air.

In conclusion, the speaker said that there is at present no method for differentiating accurately between the alveolar air and the dead space. Further, that he did not believe that the dead space varied, but that the variations were due to some other sources of error. The method suggested of using only one expiration in the determinations is the only one yielding results of any accuracy at all.

J. J. R. Macleod, in opening the discussion, pointed out that Haldane had attributed the varying results obtained with the patient exercising to a dilatation of the bronchi at that time. Further, Haldane and Douglass assumed a homogenous concentration of carbon dioxid in the alveolar air. Both these points have been disproven. It is unfortunate that the methods for the determination of alveolar air and the dead space are inaccurate, as they might be of great value in cases of emphysema and asthma.

David Marine asked the speaker if he had conducted his investigations at all from the standpoint of diseases of the lung?

C. F. Hoover, in closing, said that he made observations in the case of a man with marked emphysema. In a stenosis anywhere in the respiratory path there is a resulting dilatation of the respiratory membranes of the lungs. Thus a case of a child suffering with laryngeal diphtheria having a marked emphysema.



In emphysema the residual air is much increased, but the dead space is not. We must differentiate between emphysema which is primary, due to diseases of the lung parenchyma, and that which is secondary, to a stenosis. In the secondary form removal to a dry climate benefits. In patients with emphysema with mild exercise the carbon dioxide content of the alveolar increases enormously.

### COUNCIL MEETING

At a meeting of the Council of the Academy of Medicine, held Wednesday, April 8, 1914, at the Bismarck, the following members were present, the president, J. J. Thomas, in the chair. Doctors Way, Houck, Weir, Updegraff, Kopfstein, Marine, Ford, Storey, Sanford, Stoner, Perkins and Tuckerman.

The minutes of the last meeting were read and approved.

On motion the following applicants were elected to active membership: Emil M. Brudno, James A. Cross, Robert L. Thomas.

On motion the names of the following applicants were ordered published: Active—Richard L. Cameron; Associate, Veterinaries—Wm. J. Classey, F. L. McCollister.

On motion Katherine R. Moses was transferred from non-resident to active membership.

Communication from E. P. Carter was read. It was moved that Carter be classed as a non-active member, until his return to the city, from the time of his leaving. Carried.

A letter concerning W. B. Rasing was referred to membership committee.

A list of those suspended for non-payment of dues was read:

The following were appointed as delegates to the Ohio State Medical Association. The secretary was empowered to appoint alternates as might be necessary. Alvin S. Storey, C. E. Ford, Willard C. Stoner, H. L. Sanford, J. E. Tuckerman.

The program committee was requested to make arrangements for the annual outing some time during the summer months.

W. H. Winan's communication from the Department of Public Welfare with regard to inaugurating an annual "Health Day" for Cleveland was referred to the committee on public health, with power to act.

C. E. Ford stated that a new sanitary code was in the process of construction by a committee of the Chamber of Commerce, and asked that the Academy empower the proper committee to co-operate. The matter was referred to the committee on public health, with power to act.

H. L. Sanford, as chairman of the subcommittee appointed to formulate, if possible, some feasible plan for providing for a medical certificate of health prior to issuance of marriage license, presented a tentative report to the Council for discussion. The report was taken under advisement and the committee was continued.

## BOOK REVIEWS

**Anatomy, Descriptive and Applied**—By Henry Gray, F. R. S., Fellow of the Royal College of Surgeons; lecturer on Anatomy at St. George's Hospital Medical School, London. New (English) edition, thoroughly revised and re-edited, with the Basle Anatomical Nomenclature in English, by Robert Howden, M. A., M. B., C. M., Professor of Anatomy in the University of Durham, England. Imperial octavo, 1407 pages, with 1126 large and elaborate engravings. Cloth, \$6.00 net; leather, \$7.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

**Anatomy, Descriptive and Applied**—By Henry Gray, F. R. S., Fellow of the Royal College of Surgeons; lecturer on Anatomy at St. George's Hospital Medical School, London. New (American) edition, thoroughly revised and re-edited, with the ordinary terminology followed by the Basle Anatomical Nomenclature, by Edward Anthony Spitzka, M. D., Director of the Daniel Baugh Institute of Anatomy and Professor of General Anatomy in the Jefferson Medical College of Philadelphia. Imperial octavo, 1502 pages, with 1225 large and elaborate engravings. Cloth, \$6.00 net; leather, \$7.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

These two new editions of Gray's Anatomy do not differ markedly from the last or 18th edition. Although the new editions exhibit certain differences when compared with each other, neither offer any great advantages over their predecessors. The added chapters in Histology, Embryology and Surface Anatomy in the volume edited by Howden were needed and increase the value of his work. In many respects, and we think in too many, the later editions have suffered from too close an observance of the traditions set by the earlier editions. A considerable, and at the same time desirable, rejuvenation of the work could be effected by the more extensive use of newer and better illustrations. This is being gradually accomplished and is more in evidence in the volume by Spitzka, but there is still room for improvement, particularly in the parts devoted to Neurology and Splanchnology. Text-books of Anatomy in the English language are weakest in their illustrations, their borrowed figures being usually the best, whereas the attempts to imitate a better class of drawings have not been so successful. The result is lack of uniformity which is often very striking and always unpleasant. On the whole, however, the illustrations in Gray will compare very favorably with those found in similar works in use in this country and are often of a distinctly superior type. The neurological nomenclature of Wilder, needlessly retained by Spitzka, has been dropped by Howden and with good reason, since it cannot hope to supplant an older and quite rational terminology. Both editions might with advantage have devoted more time to the Sympathetic System and the newer results of cerebral localization. The chapter on the sense organs is treated in a much better manner in the edition of Spitzka. In spite of these criticisms, certain of which could be applied quite as well to other textbooks in English, we consider the work well fitted to take rank with other works published in the same language and for the same purpose.

N. W. I.

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**Laboratory Cameras.**—L. B. Wilson, Rochester, Minn. (*Journal A. M. A.*, April 4), describes four types of cameras for laboratory use which do away with some of the disadvantages encountered in laboratory photographic work. These include a camera for use with the proctoscope, a miniature camera for photomicrography and a medium-sized stand for the same, and also a large stand and camera for general laboratory photography, etc. The instruments are illustrated.



## MEDICAL NEWS

**American Proctologic Society.**—The American Proctologic Society will hold its sixteenth annual meeting in Atlantic City, N. J., June 22 and 23, 1914. The headquarters and place of meeting will be Hotel Chalfonte. The profession is cordially invited to attend all meetings.

The program follows:

Commencing Monday, June 22, 1914—Executive Council meets at 11 A. M. First regular session at 2 P. M. Annual address of the president—Subject: "The Future of Procto-Enterology, Joseph M. Mathews, Louisville, Ky.

## Papers

- 1—A Review of Proctologic Literature for 1913, Samuel T. Earle, Baltimore, Md.
- 2—Abnormalities of the Colon, as Seen With the Roentgen Ray; Lantern Slide Demonstration, Walter Irwin Le Fevre, Cleveland, Ohio.
- 3—Coccygodynia: A New Method of Treatment by Injections of Alcohol, Frank C. Yeomans, New York City, N. Y.
- 4—The Technique of the Perineal Operation for Cancer of the Rectum, Jas. A. MacMillan, Detroit, Mich.
- 5—Myasthenia Gastro-Intestinalis, V. Lee Fitzgerald, Providence, R. I.
- 6—Further Observations on the Treatment of Pruritis Ani by Auto-genous Vaccines, Dwight H. Murray, Syracuse, N. Y.
- 7—A Report of Cases of Pruritus Ani Treated with Carnotite, Saml. T. Earle, Baltimore, Md.
- 8—Treatment of Amoebic Dysentery with Emetin Hydrochloride, Alfred J. Zobel, San Francisco, Cal.
- 9—Amoebic Dysentery and Its Treatment, William M. Beach, Pittsburgh, Pa.
- 10—Some Consideration of Colonic Surgery, Louis J. Hirschman, Detroit, Mich.
- 11—Myxorrhoea Coli, Membranacea and Colica, Saml. G. Gant, New York City, N. Y.
- 12—Hemorrhage Colitis; with Report of Three Cases, Jerome M. Lynch, New York City, N. Y.
- 13—Retro-Rectal Gumma; Report of Two Cases, Alois B. Graham, Indianapolis, Ind.
- 14—Anal and Rectal Growths of Benign or Doubtful Character, T. Chittenden Hill, Boston, Mass.
- 15—Retro-Rectal Infections, Collier F. Martin, Philadelphia, Pa.
- 16—Radium, Its Use in Proctology, J. Rawson Pennington, Chicago, Ill.
- 17—Rectal Adenomata—Granville S. Hanes, Louisville, Ky.
- 18—Hyperplastic Tuberculosis of the Colon, J. M. Frankenburger, Kansas City, Mo.
- 19—Pseudo Intestinal Stasis and Real Intestinal Stasis Demonstrated Roentgenologically, Arthur F. Holding, New York City.
- 20—Local Treatment of Anal Fissure, Jas. A. Duncan, Toledo, Ohio.
- 21—Reflex Symptoms Arising in the Rectum and Anus—George B. Evans, Dayton, Ohio.
- 22—Some Unusual Results of Sigmoidoscopy, Ralph W. Jackson, Fall River, Mass.
- 23—Crude and Careless Diagnostic Methods: Results of, in Reported Cases of Recto-Colonic Conditions, John L. Jelks, Memphis, Tenn.

**United States Civil Service Examination—Technical Assistant in Pharmacology (Male), June 1, 1914.**—The United States Civil Service Commission announces an open competitive examination for technical assistant in pharmacology, for men only. From the register of eligibles resulting from this examination certification will be made to fill vacancies in this position in the Division of Pharmacology, Hygienic Laboratory, Public Health Service, at salaries ranging from \$1,800 to \$2,000 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will consist of research work in pharmacology, including original investigations in the physiological assay of drugs and of the action of drugs by means of the electro-cardiograph.

Applicants should have a reading knowledge of French and German.

Competitors will not be assembled for examination, but will be rated on the following subjects, which will have the relative weights indicated:

Subjects	Weights
1. General education and scientific training.....	40
2. Experience and fitness.....	40
3. Publications .....	20
Total.....	100

An educational training, including a degree of Doctor of Medicine from an institution of recognized standing, and at least two years' subsequent experience in experimental pharmacology or physiology, such experience to have included the study, by means of experimental methods, of the action of drugs, are prerequisites for consideration for this position.

Statements as to training, experience and fitness are accepted subject to verification.

Applicants must have reached their twenty-fifth but not their fortieth birthday on the date of the examination.

This examination is open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for Form 304 and special form to the United States Civil Service Commission, Washington, D. C. No application will be accepted unless properly executed, excluding the medical certificate, and filed with the Commission at Washington, with the material required, prior to the hour of closing business on June 1, 1914. In applying for this examination the exact title as given at the head of this announcement should be used.

**Health Officers Under Civil Service**—The recent act placing state and municipal employees under civil service received varying interpretations from city attorneys, some holding that city health officers were not in the classified list, others claiming that all employees of boards of health came under the provisions of this act. Attorney General Hogan has recently ruled that all city health officers are in the classified list, and, if in office on Jan. 1, 1914, as a result of appointment, and after taking no examination, must submit to a non-competitive qualifying examination in 1914. This ruling does not apply to village and township health officers, who will be appointed as heretofore.

**Combine Against Tuberculosis.**—At a meeting of the District Tuberculosis Hospital, representatives from the counties of Allen, Auglaize, Van Wert, Shelby and Mercer were present. An appropriation of \$20,000 was made for erecting an additional cottage to the sanatorium near Lima, to accommodate twenty additional patients. The counties of Hancock, Hardin and Putnam made arrangements to participate in the maintenance of the institution. Drs. John W. Costollo, Sidney, and Oliver S. Steiner, Lima, were appointed members of the board of trustees to fill vacancies.



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## NEANDERTHAL MAN\*

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Western Reserve University, Cleveland, Ohio

In the spring of 1857 a most important discovery was made in connection with the history of man's evolution. All the longer bones of both limbs and a calvaria were unearthed four or five feet below the floor of a cave in the side of a gorge through which flows a tributary of the Rhine. The gorge is known as Neanderthal, and lies between Düsseldorf and Eberfeld. The mere fact that the bones were discovered was itself of no import, but the bones were different from those of any man then known. It is true that nine years before this happened, the Gibraltar skull, discussed in the last demonstration, was found, but as already indicated this unfortunate remnant was condemned to a long period of obscurity, and though the new fragment of Neanderthal cranium presented striking likenesses to the Gibraltar skull, these similarities were not pointed out until long afterwards.

Because of the strangeness of the appearance of these newly discovered bones, there was much heated controversy over them, a lamentable occurrence indeed, yet one which apparently seems bound to follow any striking discovery in man's physical history. While Huxley considered them to belong to an ancient race of man Virchow declared the bones to be those of a modern man suffering from disease. So long as this skeleton was the only one of its type known, one can understand how such a discussion could arise. But during the last fifty years so many similar skeletons have been found in various districts in Europe that we have no hesitation in assigning the bones to a race of men quite different from any we now know, a primitive race of men which has long been extinct, but which flourished during the greater part of the Glacial Period.

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\*Containing the Substance of the Museum Demonstration on Human Palaeontology delivered on March 5, 1914. Previous lectures of this series appeared in *The Cleveland Medical Journal* for March, April and May, 1914.

As will be seen later in the discussion, there are some similarities between Neanderthal man and the modern Australian aboriginee, the modern Mongolian, and also Heidelberg man. There is also, indeed, a superficial resemblance between the skeleton of Neanderthal man and that of a modern individual who is suffering from acromegaly. But each of these will be taken up in its turn and in the proper place.

From the evidence presented by animal remains found in neighboring caves, the bones of the Neanderthal man were first assigned to the later part of the Glacial or Pleistocene period. Among these remains were bones of the mammoth (*Elephas primigenius*) and the woolly rhinoceros (*Rhinoceros tichorhinus*), the latter, by the way, having recently been found to be no more woolly than any modern rhinoceros. Of late, however, further evidence has been obtained which suggests that the individual lived during the second interglacial period. One must remember that fifty years ago the methods in use for investigating strata of rock and their contents were crude compared with the methods of today, and, as exemplified by the case of the Gibraltar skull, this has seriously interfered with the scientific value of many of the earlier finds.

In the present demonstration there is not time to discuss every example so far discovered of Neanderthal man. We now know him from childhood to old age. Bones of the women have been found also, but not in so complete a series. It will suffice for our present study if we take two examples of representing Neanderthal man in his youth and in his later manhood. The first of these is called by the unfortunate name of *Homo Mousteriensis Hauseri*, unfortunate in that the second word indicates the Mousterian culture, whereas the individual lived in the Acheulean Period (See Table), and in that the third word will always bring to mind the regrettable circumstances of the discovery. The skeleton is that of a young man of some sixteen or seventeen years, and is by far the earliest known interment. He was found lying on his right side with his head on his arm upon a pillow of chipped flint plates, and by his left hand a weapon. Buried bones of a now extinct European wild ox were also in the grave as if food had been placed there for the dead man's spirit. The remains were found in 1908 by a Swiss archeologist in the cavern known as "Le Moustier," in the valley of the Vézère, a tributary of the Dordogne, a district in France in which many other important



## TABLE OF THE PLEISTOCENE OR GLACIAL PERIOD

One-Half to One and One-Half Million Years

(Early Stone Age—Palaeolithic and Eolithic Implements)

From Buttel-Reepen's Book, *Man and His Forerunners*.

Divisions	Human Races	Predominant Animals	Stages of Culture
Fourth Glacial Phase	Cro-Magnon (Reindeer-hunters)	Stag Reindeer Mammoth Rhinoceros tichorhinus	Azilian Magdalenian Solutréan
Third Interglacial Phase (100,000 years)	Loesshunters Cro-Magnon Late Neanderthals Loesshunters Grimaldi	Horse  Rhinoceros tichorhinus	Solutréan Aurignacian Mousterian
Third Glacial Phase	Neanderthal	Mammoth	Mousterian (Le Moustier Dordogne)
Second Interglacial Phase (200,000 to 300,000 years)	Neanderthal Eoanthropus ?	Elephas antiquus Rhinoceros mercki  Cave Bear	Mousterian Acheulean Chellean Strépyan
Second Glacial Phase		Mammoth	Rostro-Carinate (Icenian) Palaeoliths   Eoliths
First Interglacial Phase (100,000 years)	First use of fire ?	Elephas meridionalis	
First Glacial Phase	Homo Heidelbergensis ?	Rhinoceros etruscus	
Pliocene	Pithecanthropus ?		

discoveries of Neanderthal man have been made. Herr O. Hauser invited certain German scientists to assist in securing the bones which were then quietly taken to Breslau, no French archeologists having been notified of the discovery. It is not difficult then to see how controversy over this skeleton first arose. To make things worse, the fragments were put together in so indif-

ferent a manner that the mandible appeared too small for the skull and the earlier casts distributed were greatly impaired in value on this account. Now, however, the skull has been restored afresh, and new casts are available which do not exaggerate the already large size of the head.

The other skeleton to which we shall refer is one, a cast of



FIG. I.

Right half of skull and mandible of *Homo Mousteriensis*. Half normal size. The age of this young male specimen of the race was 16-17 years. The fine outlines of nose and maxilla represent parts restored roughly in clay. It is the earliest definitely known burial.

Note the receding forehead, large eyebrow ridges, prominent bulging occiput, and the general similarity on a smaller scale of the jaw to the Heidelberg mandible.

the skull of which is unfortunately not yet in our collection. It is hoped to add this important type to the anthropological series at an early date. As in the case of the Le Moustier bones, the skeleton was found in the district of the Dordogne, but this time in the department of Corrèze, near the village of Chapelle-aux-Saints. It was discovered by three French investigators only a few days before the Le Moustier bones were removed from their resting place.

Judging from the length of his limb bones, Neanderthal man



can have been only some five feet six inches in height, but his head was both absolutely and relatively of very large size. His cranial capacity was long ago estimated by Huxley at 1230 c. c., but lately it has been shown that this was far below the correct figure, a more exact estimation being over 1500 c.c. This means that, bulk for bulk, Neanderthal man possessed a larger brain than we do ourselves. However, the absolute size of the brain matters very little; it is the extent and manner of the folding, constituting the convolitional pattern, which is the character of greatest significance. To say that Neanderthal man had a larger brain than that of modern man is misleading. The statement needs to be qualified. The brain was larger, but probably not so convoluted. The brain and the teeth are the two important factors which influence the build of the skull.

The teeth of Neanderthal man were very similar to those in the Heidelberg mandible. The incisors had not the vertical position of those of *Homo sapiens*, but the canines were reduced. The molars increased in size from before backward. The roots of the teeth are long and fused to some extent, and the necks have about the same girth as the crowns. It came as a surprise that the Chapelle-aux-Saints mandible lacked some of the teeth. As a rule, in primitive man the teeth wear, but do not fall out. This last mentioned skull is the single exception to the rule so far as Neanderthal man is concerned.

As the teeth are so similar to those of Heidelberg man, one would expect the skulls to be very much alike. The mandible of Neanderthal man is, however, not so massive as in the older race, which probably was pre-Neanderthaloid in nature. Nevertheless, the jaws were much more massive than those of modern man. The chin had not developed because the effective area of the teeth was still so large. The symphysis of the mandible casts a dark shadow on radiographic examination. In this respect, like the Heidelberg jaw, it approaches the condition found in modern man, and differs from the simian mandible, the symphysis of which casts but a light shadow.

At first the Heidelberg jaw was said to fit the Chapelle-aux-Saints skull, though it will not articulate with the Le Moustier specimen, being far too prognathous. Had it been correct, this observation would lay emphasis on the fact that Neanderthal man became more prognathous as he grew older. Later work has shown, however, that the Heidelberg mandible is too prognathous

also to fit the Chapelle-aux-Saints skull and that the earlier observation is erroneous. With increasing age the bony ridges of the skull became more pronounced; hence, so far as these are concerned, the Chapelle-aux-Saints skull differs markedly from the Le Moustier specimen. In the former the supra-orbital ridges are very large and overhang the orbits, and hence the post-orbital compression of the skull appears more marked than in the younger individual. The large prominent muzzle rendered necessary the strong hafting of the skull to the neck. Hence in both young and old Neanderthals there is a very large area on the occiput for the attachment of the neck muscles. The external occipital protuberance therefore mounts higher on the back of the skull than it does in modern men, thus assisting the prominent supra-orbital ridges to give the cranium a low and flattened appearance. In addition to this wholly external character, the

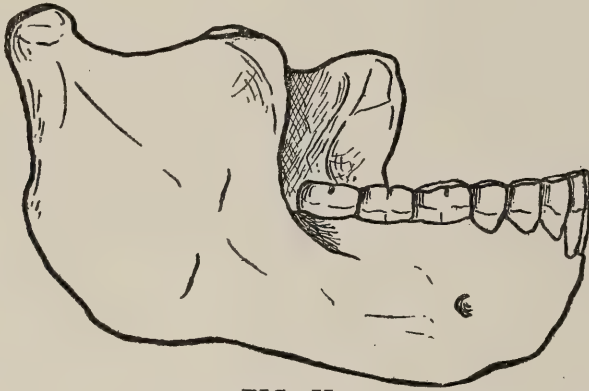


FIG. II.

Right side of Heidelberg mandible. Half natural size.

Compare this with the jaw of *Homo Mousteriensis*, and note that in spite of its more massive character, it presents the same general features as does the mandible of Neanderthal man.

upper part of the occipital squama presents a bulging appearance. Associated with the large muscular area on the occiput are the large and prominent mastoid processes, which have not the pyramidal shape and downward projection of the modern mastoid, but which are somewhat splayed outwards as in the anthropoid.

It has been noted that there is considerable similarity between the Heidelberg and the Neanderthal mandibles, the latter being somewhat less massive than the former. As would be inferred from this, the temporal ridges are not so high as they have been estimated to be on the restored skull of Heidelberg man. They are lower than in either *Pithecanthropus* or the Gibraltar skull.

Although probably belonging to a lower or more primitive



type, the Gibraltar skull has less prognathism and a smaller facial measurement than has the Neanderthaler. It has been suggested that the typical characters of the Neanderthaloid skull may be under the particular domination of the pituitary gland at the base of the brain. We know that the growth of the body and many of its characters are determined by internal secretion, but it would appear premature to claim the influence indicated by the above mentioned suggestion. One of the most striking characters of the Neanderthaloid face is the great absolute and relative width of the palate. With increased size (and disease) of the pituitary there are certainly changes in the facial bones, but so far as I have been able to determine clinically, the facial growth in acromegaly is a lengthening of the mandible with increased prominence of the bony ridges associated directly or indirectly with the muscles of mastication. The abnormalities are at any rate largely confined to areas of the head supplied by branches of the mandibular division of the fifth cranial nerve. The palate does not necessarily increase in width and the lengthening of the face is more apparent than real. Such lengthening as there is may to a large extent be accounted for by the absence of apposition of the lower jaw to the upper. Thus, although it would be fascinating to trace in the physical characters of this extinct race the influence of the secretion of any of the ductless glands, it must be maintained that any such explanation is visionary, and at present there are not undoubted facts brought forward sufficient to substantiate such a theory. The hypothesis rests on a distant resemblance which is apparently quite superficial in character. The growth throughout life of the bony ridges of the skull is, of course, a character which modern man shares in common with Neanderthal man, though perhaps in a less pronounced degree.

Inasmuch as reference is usually made to the skull in anthropological work, the rest of the skeleton seems to the unskilled reader to be of little importance. One would be more correct in saying that the importance of the rest of the skeleton is somewhat less than that of the skull, but that without the other bones we would be absolutely ignorant of very many of the special distinguishing characteristics of extinct races. From the study of the limb bones it would appear that the joints of Neanderthal man were large and clumsy, and therefore different from the neat, compact, small joints of the ape and of *Pithecanthropus*, which latter character is shared by modern man, and which is even

better marked in modern woman. The relation of the breadth of the articular ends of the femur to its shaft are more like the proportions in the Mongolian than in the Australian. The shaft of the femur is rounder than it is in modern man. The *linea aspera* is but feeble in development. A deep patellar groove and a peculiarly sudden transition in breadth between the shaft and the articular end of the bone are characteristic of the Neanderthal type. As in many other human fossils, there is indication of a hypotrochanteric fossa. The relation of the length of the femur to that of the entire body is about 1.0 to 3.7 in modern man. Using this measurement, Neanderthals would have been only slightly over five feet in height, many of them not attaining to even this low stature. It would seem possible that one ought really to estimate the height at a little more than this, having in memory the fact that in modern man the femur is comparatively long for the height of the body. The tibia is short, stout and rounded in Neanderthal man, its shortness relative to the femur being strikingly similar to the shortness of the tibia in modern woman. Indeed it may be recalled here that several of the Neanderthaloid skeletons have been classed as female when they were first discovered, the sex being considered male only on further investigation. A case in point is the Gibraltar skull already mentioned. The head of the tibia is retroverted as in the modern Mongolian. From this it has been argued that Neanderthal man walked with his knees bent. It may have been so, but the Mongolian does not adopt this mode of progression. And the same appearance of the tibia is found in many modern Parisians.

The clavicle is better marked by muscular impressions on the right side than on the left, and the right humerus is the larger and more powerful. So we may, at any rate, consider Neanderthal man to have been right-handed. As in the leg, the joints of the arm are clumsy and large. The forearm is comparatively short. It certainly had not the length which one would expect had Neanderthal man been truly ape-like. On the other hand, the bowed appearance of the radius is more marked than in modern man, and more nearly resembles the simian type. The question of the color of Neanderthal man has been discussed of late. From certain features of the face which in these days go with pigmented skins, it seems probable that the color of this



ancient race was at least olive. It is not likely that the pigmentation was so dark as that of the negro.

So much then for the physical characters of Neanderthal man. We know he was short, stout, powerfully built, swarthy in complexion, with a large head and prominent jaws, that he was right-handed, with arms of only medium length, and that he walked upright. He cannot be said to have been simian in appearance, although it is true that he presented more simian characters than we do, as indeed we should expect in a definitely lower and more primitive race. Most of the pictures representing him make him too simian in appearance. His overhanging eyebrow ridges remind one of the Australian black, but, as already indicated, some of the features of his limb bones more nearly approach the Mongolian type.

We know little of his social life or attainments. He could speak, for his jaw testifies to this, and he certainly was acquainted with fire. He is credited by some enthusiasts with being a cannibal, for near Krapina, in Croatia, a province of Hungary, explorations revealed large numbers of human bones of the Neanderthal type, many of which were half burned and all split or broken. The disordered state of these bones has led one leading anthropologist to describe in lurid words how certain ill-fated Neanderthals met another tribe of men in this cave, how a battle was fought there, and how the victors feasted on the bodies of the slain. Many times, however, has the suggestion been made that Neanderthal man was a cannibal, but always with insufficient evidence. The effect of extremes of temperature, of the gnawing by wild beasts, and even the normal architectural appearance of the lining bone of the marrow cavity, have been brought forward as evidence by investigators whose enthusiasm has outbalanced their knowledge. But, so far as I know, there has been as yet no irrefutable evidence in favor of Neanderthal cannibalism.

These same men, to whom reference has just been made, do give us some indication that there were different varieties of Neanderthals. Nowadays in Europe, man may be divided into the long-headed and the broad-headed types, of which the latter is dominant. In fact the broad-heads possess all Europe and all Asia from Japan to Germany, with the exception of the coast lines of the extremes of north and south, east and west. And in these meager areas the long-headed people are found. It is

probable that the broad-heads came from Russia to overspread the rest of Europe, and that they entered Britain some four or five thousand years ago.

Now, the outstanding character of the Krapina men, wherein they differ from most other Neanderthals, is their breadth of head. The types which we have discussed had comparatively long, narrow heads; not so these Krapina men. The distinction between the two shapes of head is therefore of a very ancient order.

One other interesting point to us is the question whether or no Neanderthal man is our actual ancestor. This question must probably be answered in the negative, and hence in the next demonstration we must consider the history of *Homo sapiens* himself.

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**Koehler's Disease.**—Two cases of the isolated scaphoid disease known as Koehler's disease are reported by F. J. Fassett, Seattle, Wash. (*Journal A. M. A.*, April 11). They were treated by plaster-of-Paris casts and while both were very suggestive of tuberculosis each recovered too promptly to favor that diagnosis. He still thinks it possible that they were dealing with a mild tuberculous focus in each case which had reached the stage of healing in sclerosis before the wall of cicatrization, at least in one case, had broken down by accident and called attention to the condition.

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**Neosalvarsan.**—The results of the use of neosalvarsan in 108 cases of syphilis are reported by Surgeons Kent, Nelson and E. F. Haines, of the United States Military Prison at Fort Leavenworth, Kansas (*Journal A. M. A.*, March 28). The series includes 340 intravenous injections of neosalvarsan by the puncture method. The character of the reactions following injections were: severe, 1; moderate, 3; mild, 58; absent, 278. Any case with temperature above 102 was called severe and like the majority of the reactions occurred in the secondary stage of the disease. Mercurial treatment was also used. The authors sum up their conclusions in the following: "1. Five injections of neosalvarsan combined with intensive mercurial treatment, have failed to show as good curative results, as shown by the serum reactions, as did one dose of salvarsan. 2. In order to 'cure' 70 and 80 per cent of our cases, it will be necessary to use four or five times as much neosalvarsan as salvarsan. 3. In view of the increased number of injections of neosalvarsan to bring about 'cures' as stated in conclusion 2, it becomes a far more expensive drug to use. 4. The drug should be used which will bring about the best results in the shortest possible time. 5. The complement fixation is of the greatest value in the diagnosis, or as an indicator to the results of the treatment. 6. In all doubtful cases at least two or three Wassermann tests should be made before a diagnosis is decided on."



### "THE LABELING VICE"

By Samuel W. Kelley, M. D., LL. D., Cleveland, O., Visiting Surgeon Children's Fresh Air Camp, Pediatricist and Orthopedist, St. Luke's Hospital, Hon. Prof. Surgical Diseases of Children, National University, St. Louis.

The exciting cause of this attack upon your attention, is the presence among us of a guest who has felt the inclination, found the time, and possessed the talent to become a physician, to distinguish himself in a special department of practical medicine, to write an admirable treatise upon his chosen specialty, to do effective organization and educational work, and to delve into the history of our profession.\*

But the predisposing cause is a belief entertained by me these many years that, as a rule a medical man seldom gets credit, or gets but tardy recognition from his fellows for knowing more than one thing, although it may be that he knows several things fully as well as the average man knows one thing.

For the present preachment I shall take my text from an essay which appeared in the *Century Magazine* for December, 1913. Its author is Robert Haven Schauffler, and its title, "Versatility and Doctor S. Weir Mitchell."

The opinions there expressed come particularly well from a layman. Their lesson should be especially salutary to our profession.

Mr. Schauffler says—"Human vanity eyes all versatility with hostile suspicion. Most of us cannot do even one thing well, and we seldom have sportsmanship enough to applaud the man who excells at two or three. We prefer to label him with the first one of his achievements that attracts our notice. As for anything else he may do, we look it over and then firmly declare 'None genuine without the original label.'"

Do you not recognize the truth of Mr. Schauffler's statement? And is it not well put?

Further on he writes: "Doctor Oliver Wendell Holmes doubtless suffered in his day from this passion for labeling genius, and the memory of his suffering must have inspired his advice to Doctor S. Weir Mitchell when the latter, at thirty, proposed to publish a first volume of verse.

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\*The reference is to the visit of Doctor James Moores Ball, of St. Louis, who delivered a lecture on "Great Artists and Famous Anatomists, Illustrated."

“‘Wait ten years,’ counselled the Autocrat, ‘and then consider it again.’ The old doctor was afraid that the labeling vice would ruin the younger man’s career in medicine.”

“The labeling vice,” is not that an apt phrase? And well deserved too.

There is no class of people among whom the labeling vice is more prevalent or works more injustice than in the medical profession.

We hear about the success of a practitioner, and we say, “Oh that’s probably not true. Why, I used to know him when he was only a school teacher.” We had stuck a label marked “school teacher” on that man, and without consciousness of being ungenerous or unfair we prefer to still consider him as we had originally classified him rather than take the trouble to follow his career through toilsome courses of study and years of practical experience which have transformed the man as we formerly knew him into another of far more heroic stature.

Or we happen to have heard of a man most as a writer upon medical or other topics and we say, “Surely he can’t be much of a practitioner or he could not find time to write all that.”

Or we have labeled him in his youth as a general practitioner and although he excel as a surgeon we refuse to believe the plain facts possible, we say, “You know I always thought of him as an internist.”

The versatile or the progressive man may have taken his vacations even as did Doctor Wier Mitchell in resting by change of work instead of by abject, prone and debilitating idleness. We fail to remember the minutes, the minutes, the hours, the hours we have loafed away in smoking rooms, in idle gossip, or over the card table, or in resting, self satisfied, which while perhaps not harmful in themselves, the other man has employed in quite another manner.

We had our ease, why begrudge him the proceeds of his labor?

It may be true of him during the passing years as was said of a famous courtier, explorer and historian, “He toiled terribly”!

It may be that our acquaintance has exemplified in his life those lines of Longfellow’s

“The heights by great men reached and kept



Were not attained by sudden flight;  
But they, while their companions slept  
Were toiling upward in the night."

Again we should not fail to perceive and should be honest enough to acknowledge that in some instances the literary training, the mechanical invention, the scientific insight, the political wisdom which would be slavish toil and vexation or even an absolute impossibility for us may be for another mind, pleasure, sportive pastime, mere hygienic mental calisthenics, or even an involuntary expression, or explosion of accumulated cell force. Witness for example the amazing activity and versatility of Virchow as a savant, an investigator, a teacher, a popular writer, an archaeologist, an ethnologist, a pioneer in human pathology. He was for 40 years a political power as a member of the Prussian Diet, and served also some years in the German Reichstag, and beside the German language cultivated French, English, Italian and Arabic.

I differ from Mr. Schauffler's view in only one particular. Doubtless he is right in ascribing the labeling vice and its erroneous conclusions and unjust consequences to human vanity as the principal cause; but I will be charitable enough to believe an equally prevalent cause is sheer intellectual indolence or a lack of mental acuity. It requires observation and effort and understanding to estimate the capability of the other man. Briefly, it takes brains to appreciate brains.

Baas in his history of medicine, as translated and edited by Handerson, says "to merely indicate here the services of Haller is impossible. Haller like Aristotle demands a special historian of his own, and *only an equal mind can estimate him completely and correctly.*"

Mark the words I have italicized—"Only an equal mind can estimate him completely and correctly."

Gerhart Hauptman in one of his novels,\* puts it thus: "It is impossible to make the inevitable course of a man's destiny comprehensible in all its details. Every man from his birth to his death is a unique phenomenon with no exact counterpart in the past or in the future. *The observer understands things only within the limits of his own peculiar nature.*" (Italics mine.)

Haller is described as an "universal and indefatigable savant"

\*The Fool in Christ," Chap. XX.

with an inborn love for science and art, an astounding capability for work, "one of the greatest medical thinkers of all time," and distinguished also as a botanist, as a statesman and as a poet. He made notable advances in the anatomy of the heart, of the brain, and its membranes, of the lymphatic system and the generative organs in both sexes; made valuable researches in embryology of fowls, sheep, goats and kine. The physiology of the heart and of digestion and the mechanism of respiration were enriched by his labors. He was the father of the modern conception of the physiology of the nervous system, his work being comparable to that of Harvey upon the circulatory system, and was the founder of experimental pathology. He was a member of the great council of his native city, and performed prodigious labors as Landammann of the largest of the cantons of Switzerland; was founder of the botanical garden, the anatomical theatre and hall of anatomical drawings in Goettingen and throughout his life a voluminous author. You see it would take mental acuteness and effort merely to follow intelligently the activities of such a character. Our limitations and our indolence as well as our vanity interfere with an adequate estimation and acknowledgement of the achievements of such a versatile, magnetic and radio-active mind.

I will admit as a fact that the great majority of men select an occupation or pursuit or have it thrust upon them, accept the first label put upon them by their fellows and remain quietly in one place upon the shelf assigned, to the end of their days. But as is often said, not merely the academies and colleges are schools, but life in its entirety is a university. Yes, and only the sluggards or dullards remain without excellence in some class or another. The greatest talent is not always discovered at first, but is found later by trial, by opportunity, by environment, by development.

If you are harboring the fallacy that a man always finds his sphere and does his principal work early in his career or during the first four or five decades of his life or under the first label that you stick upon him, study past and current history, or read Dorland on "The Age of Mental Virility" and be convinced to the contrary.

There are some men who will not stay put—and those are men who have to be reckoned with in the intellectual world. Of



that class were five immortal physicians, members of the Continental Congress, who signed the Declaration of Independence; Josiah Bartlett and Matthew Thornton of New Hampshire; Oliver Wolcott of Connecticut, Lyman Hall of Georgia; Benjamin Rush of Pennsylvania, who was Surgeon General of the Middle Department of the Army, member of the Convention for the Adoption of the Constitution of the United States, foremost medical practitioner of his day, alienist, medical historian as well as a maker of history, forceful writer and controversialist upon medical, political, philosophical and educational subjects, whose monument at Washington will stand and whose memory endure while the nation has a place upon the earth.

So embarrassing, so disquieting are these fellows who will not stop growing and developing new characters. They disturb our equanimity, upset our complacency, wound our self esteem and require so many new labels.

Why could not Morton, the dentist, stick to his turnkeys and forceps and drills like other dentists and not experiment in pharmacology and find an anesthetic? Mr. Jonathan Hutchinson was labeled an able general surgeon. Why must he choose to carry off honors in ophthalmology? And not then content, why must he compel us to reestimate him, and accord him eminence as a syphilographer? We had Joseph O'Dwyer nicely labeled as a general practitioner and had even accredited him some skill in working with children. Why could he not stay put? What business had he to invent an operation and perfect instruments for its performance? Had we not surgeons and even laryngologists for that purpose?

Under the sluggish and undiscerning rule of "The labeling vice"—and the dictum of that old saw "Let the shoemaker stick to his last," Michael Angelo sculptor, should never have lifted brush to canvas; nor Leonardo da Vinci, military engineer, become a painter; Doctor Leonard Wood should never have become Major General, Military Governor of Cuba, Special Ambassador to the Argentine Republic and Chief of Staff of the U. S. Army; F. Hopkinson Smith should never have laid down palette and mahl stick long enough to pen delightful stories; nor should James Newton Mathews have sounded the tender, strong and charmingly rhythmical notes of his "Lute of Life," whose music is too seldom heard among us.

Weir Mitchell should have been satisfied with his title as a physician, for so he had been honorably dubbed. At most, he should have rested quietly as physician and neurologist—that is a double allowance of labels. He should have left the investigation of the comparative physiology of reptilians and of the poison of snakes to the naturalists, the chemists and the pharmacologists. Neither profession nor public had ever asked or even expected him to become a novelist, or a short-story writer. We were surely slow enough to recognize in him the superlative qualities of the poet. Do you happen to have heard about the reception of his poetry? He mentions it himself in his preface to the volume entitled “The Comfort of the Hills,” which was published in 1909.

“In 1882,” writes Doctor Mitchell, “I printed the first of six volumes of verse. The editions of each were limited to two or three hundred copies, with an average sale of about fifty copies. Having generously given away the rest, I am amazed to find that these volumes are now sought for by the collectors of first editions and are occasionally bringing absurd prices.” \* \* \* The preface goes on, “The odes appeared in the *Century Magazine*; ‘On a Lycian Tomb’ was first printed in the selection of my poems published by MacMillan in London. This volume had still more brilliant success than its predecessors in America. In all, eighteen copies were sold in the first year and, so far as I know, none since.” And yet—take for example “The Ode on a Lycian Tomb”—such competent critics as Charles Elliott Norton and Thomas Bailey Aldrich have considered it one of the four or five greatest elegaic poems in the English language; and there are others among his creations in verse that will demand for him a permanent position among the poets. However, you will please note, it was twenty-seven years after their publication when there was a demand among collectors for these first editions, and we were compelled to accord to Doctor Mitchell another label.

Would it not be unfortunate if the fashion of specialization should increase this tendency of ours to regard versatility in others or to fear it in ourselves as mere diletantism?

The labeling vice is not only hostile to others, its practice may prove a boomerang, which returns and strikes the thrower. It were far better to let ourselves and the unaccustomed subject



feel the influence of the contact of that "unique phenomenon," our own personality. Who knows what may be the result of the experiment? There is greater danger of dwarfing or hampering one's mind by a limited conception of its possibilities than there is of rendering its efforts ineffective by diversity of exercises. John Morley said of Voltaire: "There was no subject which any set of men have ever cared about which, if he once had mention of it, Voltaire did not care about likewise. And it was just because he was so thoroughly alive himself that he filled the whole era with life."

Unless the mechanism of our minds is attuned to respond to the waves of the intellectual ether, the universe surcharged with an infinite variety of knowledge has no meaning for us—yields us no message—adds nothing to the stream of thought that constitutes our life.

To know only one thing is to fail of knowing rightly even that. Such a view of the subject has no perspective, no sense of due proportions, no judgment of relationships. Shall we not at times do well to observe and think upon subjects outside the accustomed well-trodden paths of our daily routine? Shall we not by study of historic characters and by more prompt and generous appreciation of merit in our contemporaries, not only deal more justly with them, but stimulate and quicken our own faculties into new life and enlarge our mental field of vision—extend our psychic horizon?

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**Surgical Shock.**—A. B. Cooke, Los Angeles (*The Journal A. M. A.*, June 6, 1914), recommends Crile's method of anoci-association as a means of preventing inconveniences and dangers of surgical shock, and explains its principles and technic. The dangers of the quinin and urea hydrochlorid anesthesia are, in the light of his experience, purely imaginary. With reference to securing early bowel movements for preventing gas pains, which he has suggested as a fifth important step in the method, he says he has found its value in a long series of cases. It has been his regular plan to begin the administration of calomel in powder usually combined with cerium oxalate, 1 grain of the latter to  $\frac{1}{2}$  grain of calomel, from twenty-four to thirty-six hours after the operation and to repeat the dose every hour until six are taken. From four to six hours after the last dose, or sooner if indicated, a purgative enema is given, which generally inaugurates active peristalsis. A few days or even hours saved the patient seem to him to justify this routine and render it highly desirable. He concludes by saying that if there were no more data than his own experience he would still consider anoci-association the most important surgical advance of the past quarter century.

## THE ABDERHALDEN SEROLOGICAL TEST FOR PREGNANCY—A PRELIMINARY REPORT of 150 CASES\*

By WILLARD C. STONER, M. D., and A. J. SKEEL, M. D., Cleveland

The serological test for the presence of pregnancy as suggested and established by Abderhalden has received world-wide recognition. It is not the purpose of this paper to discuss the details of the theory of the test nor to draw absolute conclusions as to its diagnostic value but to briefly give points on technique, call attention to possible sources of error and report observations made on the blood sera of 150 cases.

It has long been known that when a foreign substance such as a protein is introduced directly into the blood stream the organism reacts by producing a ferment which causes a cleavage or breaking down of the foreign substance. During pregnancy we have introduced directly into the blood stream the syncytium which is the outer covering of the chorionic villi and it is supposed that against this substance a ferment is produced which digests intravascular the syncytium thereby reducing it to a simple albumin molecule with which the blood is familiar. It is with this ferment that we have to deal in Abderhalden's serological test. The specificity of this ferment is not definitely established for it has been found that blood sera from malignancy, fibroid tumor and pelvic inflammatory cases may give the reaction. This ferment is destroyed by heat at a temperature of 56 degrees C.

The technique of the test is as follows:

1. Antigen which in this case is placental tissue is prepared by taking a fresh placenta and completely freeing it of blood by repeated washing in water and finally in physiological salt solution. It is then boiled in distilled water for one hour, drained and again boiled in distilled water for five minutes after which it is tested for the presence of free protein in the water and if no reaction is shown the placental tissue is preserved by placing in a solution of equal parts of water and chloroform and overlaid with toluene. This preparation may be kept indefinitely but must be tested from time to time to determine whether a dialyzable protein has developed. If it reacts to a protein then it must be reprepared.

The apparatus necessary for the test consists of dialyzers which are impermeable to serum albumin but permeable to a lower type of protein such as peptones and amino acids. The

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\*From the Pathological Laboratory of St. Luke's Hospital, Cleveland.



dialyzers of Schleicher and Schüll, No. 579-A, are the most satisfactory.

Other apparatus consists of glass containers for dialyzers, glassware for handling bloods such as capillary pipette, graduated pipettes, test tubes and ninhydrin which is used as indicator to determine the presence of a protein in the dialyzate. Blood is secured in the same manner as for the Wassermann reaction or other complement fixation tests by placing a tourniquet above elbow (a towel is as good as any) scrubbing the arm at bend of elbow with alcohol and inserting needle into vein allowing 10 to 15 c.c. of blood to flow into a sterile test tube. This blood is left to stand for a few hours during which time the clot forms and the clear serum separates. This serum which must be free from haemoglobin and blood cells is lifted from clot with a capillary pipette.

In dialyzer No. 1 is placed a piece of placental tissue and  $1\frac{1}{2}$  c.c. of blood serum. In dialyzer No. 2 is placed the same factors, but blood serum is first inactivated to destroy the ferment, that is, subjected to a temperature of 56 degrees C. for one-half hour in water bath. These dialyzers are placed in glass containers in which is placed 20 c.c. of distilled water. Both blood and water are overlaid with toluene to prevent contamination and placed in incubator for 16 to 20 hours at 37 degrees C. At the end of this time the water, which is now the dialyzate, is tested for the presence of a protein. To 5 c.c. of the dialyzate is added 0.2 c.c. of 1 per cent solution of ninhydrin and boiled for one minute; if positive a lavender to deep blue is obtained, while if negative no color change takes place. The central tube must always react negatively and if positive show either faulty technique in the performance of the test or a blood that has a dialyzable protein, which is very exceptional.

In view of the many difficulties reported by various workers we had anticipated failures, but were gratified with our results; however, we learned early the importance of absolute cleanliness of glassware and the careful handling of bloods, even more careful than necessitated in Wassermann and other serological work.

Our difficulties consisted of positive reactions in non-pregnant conditions and were largely due to use of old bloods, glassware that was not absolutely free from foreign substance, and failure to use toluene in a few tests. We did not find faulty dialyzers. Of 78 cases in which a clinical diagnosis of pregnancy was established, only one reacted negatively. The bloods were

obtained throughout the pregnant period from one month up to full term. Observation has shown that positive reactions may be found as early as two weeks in the pregnant state and not later than three weeks subsequent to delivery.

Of eight post partum cases in which the bloods were obtained from one day to three weeks subsequent to delivery, all reacted positively. Of 68 non-pregnant cases, eight were clinically diagnosed cancer, six of which gave a positive reaction to both placental and cancer tissue and two gave a negative reaction to both. Two cases of fibroid tumor of the uterus were positive and one was negative.

The non-pregnant cases included a variety of clinical conditions aside from cancer, fibroid tumor and pelvic inflammatory cases, all of which gave negative reactions, save four cases in which the contral tube gave a reaction also, showing faulty technique in the way of old bloods, unclean glassware and failure to use tolual.

Four urines of pregnant cases gave reaction in No. 1 and 2 tubes, but No. 1 tube was much more intense, showing the presence of a normal dialyzable protein in urine and probably a ferment due to pregnancy. Pregnant rabbit blood on both human and rabbit placenta was positive and non-pregnant rabbit blood on human placenta was negative.

Eleven cases were syphilitic and gave a positive Wassermann, but the Abderhalden was negative. Eclampsia and threatened eclampsia cases showed positive reactions with usual intensity.

### Conclusions

1. That the test is delicate and will require the skill of one especially acquainted with serological work and great care in ruling out possible sources of error.

2. That, barring a few clinical conditions that may give the reaction such as malignancy, fibroid tumors and inflammatory processes, the test is as reliable as the Wassermann reaction for the determination of syphilis.

3. That the greatest diagnostic value will be in that type of case where clinically it is difficult to differentiate between a pregnant and non-pregnant condition and in which the test reacts negatively, barring out the likelihood of pregnancy.

We wish to thank Doctor A. E. Robertson and Doctor C. T. Hemmings for the help given in carrying on the work, as well as a number of physicians who have furnished us with material.



## CARDIOSPASM\*

By JOHN D. OSMOND, M. D., Cleveland

Cardiospasm represents a condition in which there is a spasmodic constriction of the cardiac orifice of the oesophagus, causing pain and dysphagia. As the condition becomes chronic there is gradual dilatation of the oesophagus.

At autopsies performed in England about 1874 an occasional case was found to have an enormously dilated and hypertrophied oesophagus. These specimens are now kept at the British Museum in London.

The first case of cardiospasm with dilated oesophagus was recognized clinically and reported by Meltzer, in Germany in 1886.

The study of this condition by investigators is limited largely to the last 10 years. Up to 1904 only about 100 cases had been reported. Several hundred cases now can be found in the literature, the largest series, 91 cases, being reported by Plummer. The condition is not easily recognized, but it is not rare when looked for.

*Etiology:* Secondary cardiospasm is known to occur in cases where there is pathologic change in the oesophagus or adjoining part of the stomach especially in carcinoma at or near the cardia. This paper deals principally with the primary condition.

The cause of primary or idiopathic cardiospasm is speculative, therefore unknown. It is thought to be of nervous origin and may occur in the following conditions:

1. In general neuroses.
2. In degenerative changes of the nerves.
3. In toxic injuries.
4. Autotoxically, as in gout.

In the first 40 cases reported by Plummer the age of the patient varied from 17 to 58 years, 22 females and 18 males. In Eppert's report of March, 1914, of 70 cases, the age of the patient varied from 20 to 60 years, and 21 were women and 39 men.

Primary or idiopathic cardiospasm is cardiospasm in which no anatomical lesion can be demonstrated. An incoördination of the swallowing act occurs in idiopathic cardiospasm. When the peristaltic wave of the oesophagus reaches the cardia, that

\*Read before the Cleveland Academy of Medicine, April 3, 1914.

sphincter does not relax and retention of food in the oesophagus is the result. A knowledge of the nerve supply does not reveal why the mechanism fails to work at times. The nerves are derived from the vagi and the sympathetic trunks. They form a plexus between the two layers of muscular coats and also a second layer in the submucous tissue. The vagus supplies dilating and contracting fibers to the cardia. Normally the cardia remains closed and only opens when a peristaltic wave descends the oesophagus, for the circular fibers of the lower end of the oesophagus which form the cardiac sphincter are normally in a state of tonic contraction. Experimentally it is well known that the peristaltic wave is transmitted by the nerve mechanism. That stimulation of the vagi releases the cardiac sphincter, and that section of these nerves causes a firm closure of the cardia and a paralysis of the smooth muscle fibers of the oesophagus, thus producing a condition most favorable for oesophageal dilatation. Examination of museum specimens of chronic idiopathic cardio-spasm reveals a greatly dilated and hyperthrophied oesophagus, but the cardiac sphincter was *not* hyperthrophied. Continuous spasm elsewhere causes hypertrophy, e. g., the pyloric sphincter and the anal sphincter. There is some doubt that there is enough primary spasm at the cardia to cause dilatation of the oesophagus. However, when dilatation is once established, no spasm is necessary to keep the fluids in the dilated oesophagus. The walls bulge down and valve-like pressure is exerted from the sides. Cardio-spasm has been known to begin acutely after the shock of reading a letter containing bad news. "The consensus of opinion" as to the cause of the condition "is that it is an upset of coördination of the nerve muscle mechanism" that causes food to be held up at the cardia.

*Symptoms:* Cardiospasm begins with the acute form and lasts from a few hours to a few days. During this time, if the patient takes food, there is a feeling as if something has remained in the oesophagus. There is a mild choking sensation and some dyspnoea. The discomfort is described as being behind the lower part of the sternum. There is some radiation to the back or neck. The attack may last only a few hours, but it returns periodically at intervals, of weeks or months. If the attack lasts several days, and more food is taken, the oesophagus begins gradually to dilate. This eventually leads to the chronic condition in which there is great dilatation of the lower half of the



oesophagus. After the dilatation begins there is at times regurgitation of food. The essential features of the chronic condition are, first, a long history extending over 10 or 20 years; second, difficulty in swallowing and the occasional regurgitation of food, and third, a gradual loss in weight.

After a large dilatation has occurred, the choking sensation disappears and regurgitation of food takes place at irregular intervals. The patient even awakens at night to find the mouth and nasal passages filled with food.

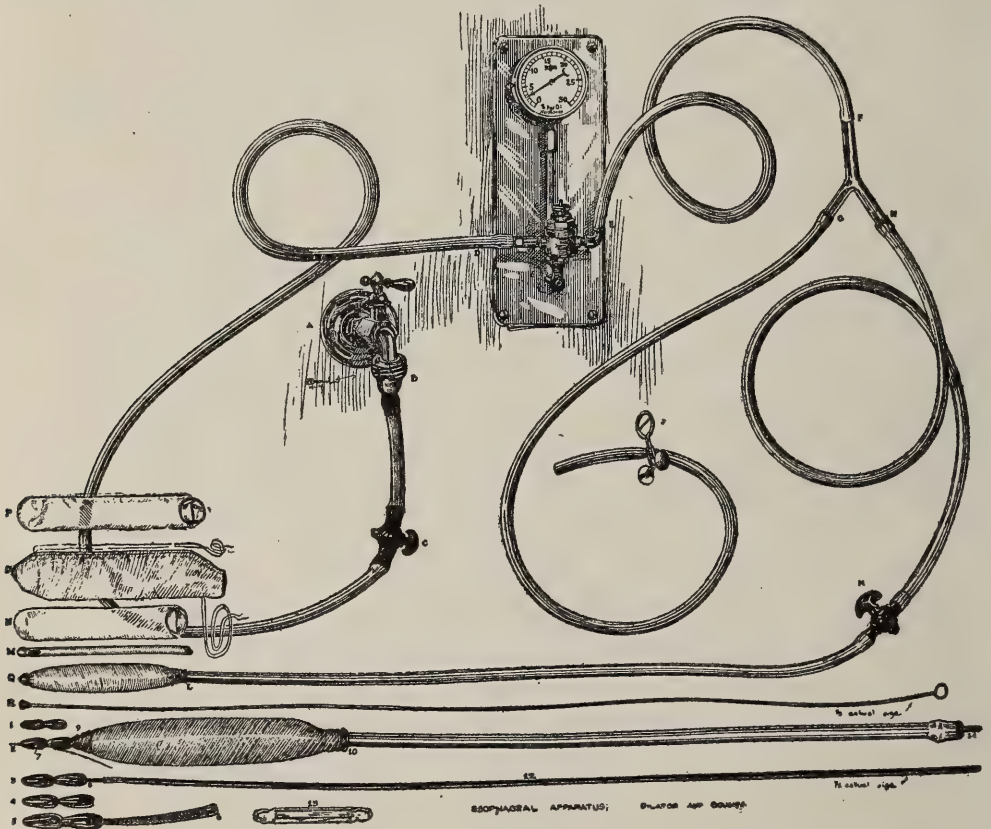
*Diagnosis:* Diagnosis of the acute condition is made from the history of repeated attacks of dysphagia and the choking sensation after taking solid food, in which relief was sometimes afforded by drinking water. However, the acute attack may be independent of taking food. In some acute cases regurgitation occurs immediately and neither solid nor liquid food can be retained during the attack. The diagnosis of the chronic condition with dilatation of the oesophagus depends on the history of the case, the character of the obstruction at the cardia, and a ruling out of those conditions which may cause a secondary cardiospasm. The character of the obstruction can be determined by the clinical features of the case and an examination with the X-ray or the oesophagoscope. The typical radiograph reveals the oesophagus greatly dilated and the shape of an inverted cone with smooth walls. Oesophagoscopy reveals the character of the lumen and any lesion or benign stenosis can readily be determined. An essential feature in the diagnosis of cardiospasm is the ease with which large bougies or stomach tubes can be made to pass through the cardia. Force should never be used in passing the bougie. In fact blind methods of diagnosis are being abandoned in favor of radiography and oesophagoscopy.

If the cardiospasm is secondary to malignant growth, there is a more rapid decrease in weight, and the radiograph reveals the tumor mass. In primary cardiospasm time soon rules out malignancy. Other points to be considered in making the diagnosis is the presence or absence of the swallowing sound at the cardia, and the quantity and reaction of food that can be removed at different levels with the stomach tube. Einhorn states that if the swallowing sound can be heard at the cardia within seven seconds after taking liquids, neither cardiospasm nor great dilatation is present. However, if it is delayed from 12 to 20 sec-

onds, or now delayed and now absent, cardiospasm is frequently present.

In regard to the removal of food, a stomach tube introduced about 16 inches will empty the oesophagus of its contents which are *not* acid in reaction. If the tube is pushed two or three inches further, stomach contents can be obtained. The reaction of the contents is important, for cases are on record in which the stomach had supposedly been washed out for weeks, the tube bending back on itself and merely emptying a dilated oesophagus.

*Treatment:* The acute condition is relieved by nerve sedatives and bougies. However, the condition returns.



A. K. Pressure apparatus attached to the Lerche dilator at K.

Pressure is controlled at J.

R. Staff for introducing the Lerche dilator.

10. Plummer dilator guided by silk twist.

The relief of chronic cardiospasm with dilated oesophagus is distinctly a 20th century method. Mikulicz in 1903 performed an operation in which he stretched the cardia with his fingers after opening the stomach. Great relief was given the patients, however some died. Clinicians soon devised methods of dilating from above instead of the gastrotomy.





CASE No. 1.

Marked dilatation of oesophagus in Cardiospasm. Typical. Anterior view.



CASE No. 2.

Moderately dilated oesophagus. Peristaltic wave present. Lateral view.



The problem is to get a bougie or dilator through the cardiac orifice and overstretch it, even up to 12 c.m. when using the Einhorn dilator. The method described by Plummer is the one most frequently used. The patient swallows a perforated shot to which is attached a silk twist. After about 6 yards have entered the intestinal tract, the silk twist serves as a very efficient guide for introducing bougies or dilators. Without the guide one is never certain that the bougie or dilator will enter the cardia. The tendency for an unguided instrument is to become pocketed if there is an opportunity. Diverticula may be diagnosed and avoided by this method.

Perforation of the oesophagus may occur if much pressure is exerted without a guide and no good is accomplished by any method unless the cardia is overstretched. The degree of stretching that can be accomplished safely is governed by the evidence of pain, and by the amount of pressure it takes to give the maximum dilatation of a given dilator. The stretching must be sufficient to paralyze the sphincter and lasts about two minutes.

The result of the treatment is marked relief from all the symptoms. The patient is able to take solid food and the gain in nutrition begins at once. Occasionally a second or third treatment is necessary, but in many cases a single dilatation is sufficient.

#### Case No. 1

*September 1, 1913.* Male, aged 24 years. Complained of difficulty in taking food for the past four years. First noticed that the food seemed to stick in the oesophagus, causing an uncomfortable feeling all through the anterior chest. Relieved by taking a drink of water or milk. The dull pain and uncomfortable feeling returned at intervals of a few weeks. After several months he had greater difficulty in getting relief by taking fluids. One year and a half from the beginning of the illness he began to regurgitate food. Some days he would regurgitate everything he had eaten, at other times every third day. Finally after having taken food and liquids he learned to take a deep breath and compress the thorax and force the oesophageal contents into the stomach.

In March, 1912, he entered Lakeside Hospital. He was treated for one week with the Bunts dilator up to size 36-F. He began to eat well again, but had a recurrence of the spasm three

days after leaving the hospital. He was told to purchase a No. 40 bougie. This helped for a few weeks and then the spasm returned and no food would pass even immediately after having used the bougie.

He first came to the office in August, 1913. Examination revealed a dilated oesophagus holding 12 ounces of food. Large quantities were being regurgitated every second or third day. The oesophagus was emptied and a large dilator was easily passed through the cardia. A radiograph was made, which showed a typical inverted cone with smooth edges.

On September 1, 1913, the Lerche dilator was used and the cardia overstretched to a distance of  $3\frac{1}{2}$  c.m. diameter. The patient experienced no pain, and to my surprise went out and within an hour ate a meal of meat, potatoes, cabbage and bread and had a glass of beer. He said he had been unable to take any effervescent liquids for more than a year. He had complete relief for a month and gained 11 pounds. Then, as he complained of a slight return of the symptoms of difficult swallowing, he was dilated again. On February 28, 1914, he had gained 24 pounds and felt perfectly well.

#### Case No. 2

*December 20, 1913.* Male, aged 21 years. Complained of dysphagia for two years. Began with a choking sensation when taking food. Dry food seemed to lodge at the lower end of the oesophagus. It became his habit to take a swallow of water after every mouthful of food. On two occasions while at work in the field he had an attack of pain beneath the sternum radiating through to the back. These attacks lasted but two or three minutes. Twice he had immediate regurgitation at meal time.

Examination showed a slightly dilated oesophagus. Difficulty was experienced in passing the stomach tube. However, a test meal gave the normal proportion of acids in the stomach. The radiograph revealed a moderately dilated oesophagus. The walls were smooth. A peristaltic wave was seen near the cardia, the fluoroscope revealed the regular peristaltic wave of the oesophagus in its effort to empty the bismuth. An oesophagoscopy should have been done in this case. In the treatment of the case difficulty was experienced in locating the cardia with the Lerche dilator. Therefore the silk twist was used as a guide and the Plummer dilator used, after having easily passed several large



olives on the guided sound. The cardia was stretched to a diameter of 3 c.m. and repeated in four days. Then the Lerche instrument was used and the stretching completed to  $3\frac{1}{2}$  c.m. diameter. Two days later he returned to his home and a letter, March 20, 1914, reported him feeling absolutely fine.

### References

- Bryant: *Journal Minn. M. Assn.*, 1908, XXVIII, 177.  
 Jordan, A. C.: *British Medical Journal*, Oct. 11, 1913.  
 Lerche: *St. Paul Med. Journal*, 1908, X, 171-183.  
 Plummer, H. S.: *Journal A. M. A.*, Aug. 15, 1908. Vol. LI, pp. 549-554.  
 Plummer, H. S.: *Journal A. M. A.*, 1912, LVIII, 2013-2015.  
 Einhorn, Max: *American Journal of Medical Sciences*, Oct., 1910.  
 Gepfert, F.: *Centralbl. f. d. Grenzgeb d. Med. u. Chir.*, 1914, XVIII, 149-187.  
 222 Osborn Building.

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**Diagnosis of Syphilis.**—Experience with sero-enzyme diagnosis of syphilis according to Abderhalden's method is described by F. W. Baeslack, Detroit (*Journal A. M. A.*, March 28), who gives tabulated results in forty-six cases. The tissues made use of in his experiments are the glistening white pearly gummas resulting from the inoculation of rabbits with syphilitic tissue or blood of patients affected with syphilis. The mucoid degenerations thus caused contain the spirochete in large numbers. The technic is described in very full detail. Eight of the serums came from patients in the primary stage of the disease, eighteen of the secondary; seven in the tertiary; five were from tabetics; seven from paretics and one from a case of congenital lues. There were also tested four serums from normal persons, three from patients with chancroid and two from scarlet fever patients. One of the scarlet fever patients gave a positive Wassermann but a negative sero-enzyme reaction. In the other nonsyphilitic cases, the Wassermann and sero-enzyme findings correspond. The cerebrospinal fluid obtained from nine cases of tabes and general paresis gave a positive Wassermann while the sero-enzyme test was negative showing the absence of the enzyme in the cerebrospinal fluid and the difference in the factors entering into the Wassermann from those bringing about the sero-enzyme reaction. While the Wassermann reaction at times is negative in the primary stage of syphilis, the sero-enzyme reaction was positive in all the eight cases. In the eighteen secondary cases, there were four negative Wassermanns but in all the sero-enzyme was positive. Baeslack suggests that the specific enzyme in the serum of syphilis is probably directed against the degenerated cell proteins rather than against the infecting agent. The sero-enzyme reaction seems to be specific and demonstrable at an earlier period than the complement-fixation test.

## THE HISTORY OF THE PHYSIOLOGY OF THE NERVOUS SYSTEM\*

By ROY G. PEARCE, A. B., M. D., Instructor in Physiology, Western Reserve University, Cleveland, Ohio

By the time that the average student of medicine has mastered the anatomy and the physiology of the central nervous system, as it is taught at the present time, he may wish that he might go back to the good old days when there was less known about the subject than there is now. However, I fear that he would be jumping from the frying pan into the fire, for we find the information concerning the central nervous system diminishing rather than increasing as time goes on. It reminds one of many people who can talk much on subjects they know nothing at all about.

From almost the earliest times of which we have reliable records, the brain has been thought to be the seat of the soul. Pythagoras thought that the brain was the seat of the intellect, of the soul, and of the organs that form the seminal fluid, which he thought to be a sort of froth from the nobler parts of the blood. Later this idea fell in disrepute, and the Hippocratic school regarded the brain as the organ concerned in the preparation of mucus, and attributed the discharge in dysentery to a disease of this function. However, some members of this school admit that it may be the seat of the intellect. Herophilus and Erasistratus established the fact that the nerves carry the sensations and control movement. Galen, in the second century after Christ, had a very comprehensive knowledge of the brain. He maintained with great certainty that the brain was the seat of the intellect, particularly for that of reason, and that the nerves were the seat of the soul. He thought that the nerves coming from the cerebrum were the nerves of sensation, and those coming from the cerebellum were the nerves of motion.

The dark ages begin after the death of Galen, and there was very little of interest in the development of the knowledge of the brain until we come to the age of Vesalius. In his book on the structure of the human body, Vesalius, whose work has been referred to in several earlier lectures, devotes a chapter to the discussion of the nervous system, in which he presents some

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\*This is the fourth of a series of lectures delivered before the Sophomore class on the history of physiology. Previous lectures of this series appeared in *The Cleveland Medical Journal* for March, April and May, 1914.



theories which have a singularly modern appearance. To him the mind or soul was represented entirely by a subtle and unformed thing named "the animal spirits." This he describes as a quality of substance rather than a real physical body, comparable to the light coming through the air; and possessed of three functions, namely, the production of thought, the control of movement, and the perception of sensations. He believed that the animal spirits are formed in the ventricles of the brain, from the vital spirit of the blood, by the action of the air drawn into the brain through the pores of the ethmoid and the spheroid bones. By vivisections he showed that action of a muscle is dependent on the functional continuity of its nerve, and that injury of the brain deprives the animal of sensations and the ability to perform co-ordinated movements. He believed that the various organs in lower animals had the same functions and reacted to stimuli with the same sensations as in man. He had little patience with the theologians and philosophers who attempted to explain the manner in which the brain produces thought and performs its functions, but refrained from going deeply into the discussion (*viz.*, the physiology and psychology of the nervous system), since he did not wish to antagonize the church with theories which he did not have the facts to prove.

About the time that Vesalius was retiring from active scientific work, there was born in LaHaye, France, a man who had a most notable effect on the teaching of the function of the nervous system. This man was René Descartes. He lived the most of his life in Holland, and died in Sweden shortly after he had accepted a position at the court of the young Queen Christina, the daughter of the great Gustavus Adolphus. Descartes is known chiefly through his works on mathematics and physics. He was not content to explain the phenomena of gravity, magnetism, light and other similar forces by means of the theory of molecular movement, but included the subjects of chemistry and biology, and reduced all to a mere problem of mechanics. The most remarkable application of the theory is the explanation of the phenomena of life in man and animals. He says: "If we possessed a thorough knowledge of all the parts of the seed of any species of animals, we could determine entirely and mathematically deduce the whole figure and conformation of each of its members." He used the doctrine of the circulation of Harvey as an argument in favor of his theory, and claimed that the

heat was the cause of its contraction. According to his views, the largest particles of blood are sent to the organs of reproduction, and the finest and most spirited particles are used by the brain for nutrition and for the manufacture of animal spirits. He believed the pineal gland to be the primary organ in the production of the vital spirits and the seat of the soul in man, and he propounded the fantastic doctrine that a voluntary movement is due to the pineal gland being tilted in such a way that the animal spirits can flow into the proper nerve and thus find the muscle which is to contract. His explanation of the manner by which external stimuli cause reflex action is that each nerve of sensation is connected by a thread with a valve in the brain. When this thread is pulled, it opens the valve and allows the animal spirits to flow into the proper nerve and thus find their way to the muscle. He claimed that the soul is the distinguishing feature of man, and that otherwise he is only a machine similar to the animals. Without a soul, the animal is not capable of thinking or feeling pain, and hence we find Descartes and his school the most cruel of vivisectionists.

Foster writes: "If we read between the lines of Descartes' works, and substitute in place of the subtle fluid of the animal spirits, the molecular changes which we call the nervous impulse, if we replace his tubes (threads) with their valvular arrangements by the present system of concatenated neurones whose linked arrangement determines the passage and the effects of the nervous impulse, Descartes' exposition will not appear so wholly different from that which we give today."

However, Descartes was not a physiologist, but rather a philosopher, taking interest only in the body as it bore on the greater problems of the universe. His knowledge of anatomy was too faulty to allow him to do more than to generalize, yet he wrote the first real text book of physiology, which was used for years afterward as a text.

In the seventeenth century we find a man, Thomas Willis, who is conspicuous for his labors on the structure and the function of the nervous system. He was born at Great Bedwin, Wiltshire, in 1621. As a student at Oxford, when that city was besieged, he bore arms for the Royalists. Having spent his leisure time during the siege in study, he took his degree in medicine in 1646, probably in the company of Harvey, who was the king's physician. He was appointed shortly after the Restora-



tion to the chair of natural philosophy at Oxford. He was one of the first members of the Royal Society, and was elected to membership in the Royal College of Surgeons. He later moved to London, where he gained a very large practice, having the reputation of being one of the best physicians of the time. He died in 1675, and is buried in Westminster Abbey.

Willis, aided by his gifted assistant, Richard Lower, published an anatomy of the brain and the nerves, which was a most elaborate and painstaking production. It contains a large amount of new information and many correct descriptions. He was the first to number the cranial nerves, and his descriptions of the connection of the internal carotids and the basilar arteries in the base of the skull caused the arrangement to be known by his name.

Descartes had accepted the idea of the animal spirits, and had used this idea as an argument for the exact explanation of muscular action. Willis thought that the animal spirits were a part of the corporeal soul which was present in both man and animals. He believed the corporeal soul consisted of two parts, the blood and the nervous system. The part residing in the blood was of the nature of heat, and the part in the nerves was of the nature of light, which was formed by heat. He may have coined the latter idea from Descartes.

Willis rejected the teaching of Descartes that the heat of the heart caused its contraction, and advanced the theory that the involuntary movements are under the control of the animal spirits which are produced in the cerebellum, and that the voluntary movements are governed by the spirits of the cerebrum. This division seemed to him the more likely since there is a greater diversity in the folding of the cortex in the cerebrum, which would account for the more varied movements of the voluntary muscles, than there is in the cerebellum, where the more simple movements of the involuntary muscles originate.

He says that the passage of the animal spirits along the nerves is accomplished in the same manner that wine will flow along the dry strings of a fiddle, and he explained diversity of function by the argument that "it does not seem contrary to reason to suppose that within the basis of the sensitive soul, and indeed within the same part of it, certain spirituous particles may be in movement while others are at rest."

Willis and Descartes received harsh criticism from such men

as Mayow and Stenson, who considered that the knowledge of the nervous system was too meager to allow any physiological deductions to be made on the brain.

But we must pass on to another phase of the nervous system and consider the connection which the nerves have with the muscles. In order to do this, it will be necessary to consider the views of Borelli, the Italian physiologist who lived at this time, and who was the great exponent of the mathematical and physical views of muscular contraction.

Borelli, like Descartes, took a physical view of the nervous function, and thought that the animal spirits could be agitated in two directions, namely: towards the brain, producing sensation, and from the brain, producing movement in the muscles. He likened the nerve to a tube filled with a water soaked sponge, where a slight movement of the sponge at one end of the tube would produce movement at the opposite end. He explained that muscular movements were due to a few drops of animal spirits being discharged into the muscle and there producing a sort of explosion which rendered the muscle tense.

Such views as these did not meet the requirements of the anatomist Stenson, who had proved by experiments that the muscle is not dependent either on its blood or nerve supply for its contractile ability, but he was too much of a scientist to theorize on the data he had at hand. One passage from his remarkable discussion of muscles will show how this man three hundred years ago had groped in the dark for the same something which we yet seek: "There remains another difficulty of no less moment not yet cleared up, namely, in what respect the fluid of the muscle while it is contracting differs from the movement of the fluid in the same muscle when it remains uncontracted and quiet. Is its quantity changed, or does it remain the same? Is the fluid after the event the same as it was before the event? and does the fluid move because the muscle contracted?" In such a way he dismisses the intricate and puzzling problems of muscle physiology.

Contemporary with Stenson and the brilliant school of Englishmen of the seventeenth century, we find the anatomist Glisson. Born in 1597, in Dorset, and educated at Cambridge, he became a lecturer in Greek and dean of his college at the age of thirty-two. Later, interested probably by Harvey, he took up the study of medicine and received the doctor's degree at the age



of thirty-seven. Two years later he was appointed Professor of Medicine in his alma mater. He lived most of his life in Colchester and in London, where he had a large practice. His principal works are on the disease known as rickets and on the liver. His connection with the development of the nervous system lies in his demonstration of the property of irritability, or the property of reacting to external stimuli, which is present in all tissues. He showed that the bile is secreted faster when the ducts are irritated, and also showed that the stomach movements are more pronounced when external stimuli are applied. Thus it is to Glisson that we owe the word "irritability" and the concept it holds in physiology, although it was Haller about seventy-five years later who revived the term and applied it to the power of a muscle to react to external stimuli. Since then we have begun to use the term in the wide sense in which Glisson used it in the beginning.

Glisson also showed that the change in the muscle during contraction did not consist of a swelling of its substance. In a research on the living arm of a man, which was inclosed in a plethysmograph, he demonstrated that the volume decreases on contraction in place of increasing, as the other physiologists of the day thought. Glisson unfortunately used the entire arm, and therefore the change in the circulation which accompanies muscular exercise confused his results, so that he failed to show that the volume of the muscle does not vary on contraction.

Fifty years later interest was again awakened in the physiology of the nervous system by the work of the famous Swiss physiologist, Albrecht von Haller. Haller was one of those remarkable men of the eighteenth century who succeeded fairly well in encompassing the entire knowledge of the world of the time. He was primarily a physiologist, yet his interest was so wide that he is claimed to have been an anatomist, pathologist, physician, poet, prose writer, and botanist. In his *Elements of Physiology*, Haller differentiates the contraction which occurs in muscle on heating and after forcible extension from that of the normal contraction. He showed that muscle tissue alone has the power of contraction, and that it does so through a force that is inherent in itself. This force he calls "*vis insita*," and the tissues possessing it "*irritable tissues*." Besides this force, which appears as muscular contraction, there is a force acting on the muscle from without, which causes the liberation of this force.

He says that this is supplied by the nervous system and calls it "*vis nervosa*." He admits that it is possible for *vis insita* to act without the intermediation of the *vis nervosa*, but that the latter force is usually brought into play in the normal action of muscle. He also considered the nerves of sensation and the manner in which they transmit this sensation to the brain. Since he could not demonstrate experiments to prove the above hypotheses in all cases, he does not particularly dwell on them. He attempted, however, to perform experiments which would demonstrate that part of the brain which serves the various functions, but he gave up the subject as too complicated for a complete localization of function. He takes up in what he terms "speculations" the various theories of nerve action and rejects them all as not being the true explanation. Haller does not give any concrete theory of his own regarding nerve action, but he points out that it must be a property of nerve tissue which has a different element in it from any which is known to man. The seat of the soul he thought to be in the medulla, since he could show by experiment that all the sensation and all the motor impulses entering or leaving the brain must pass through this part; and he says: "No narrower seat of the soul can be allotted than the conjoint origin of all the nerves, nor can any structure be proposed as its seat except that to which we can trace all the nerves. Our present knowledge does not permit us to speak with any show of truth about the more complicated functions of the mind or to assign, in the brain, to imagination its seat, to common sensation its seat, and to memory its seat. Hypotheses of this kind have in great numbers reigned in the writings of physiologists from all time. But all of them alike have been feeble, fleeting and of short life."

Thus we see that the question had been much debated whether there is any localization of function in the brain, and indeed it was generally denied at the beginning of the nineteenth century that any such could exist. At this time a Vienna physician, Franz Joseph Gall, brought forward his well-known system of cranioscopy, or phrenology. From his youth Gall was very enthusiastic in his belief that different portions of the brain had different functions corresponding to the various duties of the body and the intellect. He thought that he could determine what these parts were, and where they were situated, by closely observing the skulls in men who had special talents highly developed. Inasmuch as the theory was in opposition to the general



beliefs of the time, he spent most of his life in trying to popularize the theory, and in so doing added not a little to the knowledge of the physiology and the anatomy of the brain. His system, however, soon fell into disrepute, and came to be exploited mainly by charlatans and quacks. Gall never succeeded in convincing scientific men that his theory was right.

About the time that Gall was doing his work, Flourens, a Frenchman, began to make observations on pigeons after extirpations of portions of the brain. He removed the brain in these birds by successively cutting from before backwards or from side to side, and he found that these operations were not followed by corresponding changes in the animal's psychical life. He, therefore, concluded that the brain must function as a whole, since when he removed the whole brain at once, all the functions went also. These results seem to have been confirmed by a number of clinical observations on men who had suffered a loss of some of the brain without in any way damaging their intellect. These facts seemed to disprove the theory of Gall, although at this same time there appeared the work of Broca, who described a lesion of the region of the third frontal convolution of the brain as the cause of motor aphasia.

The beginning of our modern views of the localization in the brain is found in the work of Fritsch and Hitzig, who in 1870, removed the portion of the skull over the Rolandic area, which was then stimulated directly, with the result that movements occurred in certain parts of the body. While this is in a measure confirmatory of the work of Gall, it is far from being of such a nature as entirely to support Gall's teachings.

The development of the idea of the reflex action may be said to have been popularized by the teachings of Descartes. Previous to this there had been certain relations observed between sensation and movement, which had been called sympathies. Descartes pointed out that many nerves connected with the brain elicit movement without affecting the consciousness, as in the case of the involuntary closure of the eyelids, and to these he applied the term reflected movement. Descartes, as you remember, thought that the seat of reflected movement was in the pineal gland. Willis thought that this seat was in the brain, nerve plexuses, and ganglia. The clergyman of Teddington, Stephen Hales, touched this subject with his characteristic enthusiasm, and left us with the proof that the cord was necessary for a

reflex action. He did this by showing on frog that after destruction of the cord the animal no longer reacted to noxious stimuli applied to the skin. This was developed further by the Englishman, Whytt, who pointed out that the salivation which follows stimulation of the mouth and the reaction of the pupil to light and to accommodation are of the nature of reflex actions.

Charles Bell, professor of anatomy in London, and later of surgery in Edinburgh, in a little pamphlet of which the only one in existence is in the British Museum, demonstrated that stimulation of the peripheral end of the anterior roots of the cord caused muscle movement, and the stimulation of the posterior roots was followed by no visible result. He thought therefore that the anterior roots were nerves of motion, but he suggested no function for the posterior roots.

On account of his aversion to vivisection, he refrained from going further into this subject, and it was Majendie, the teacher of the great Claude Bernard, and himself a famous pathologist and physiologist, who finally proved the function of the spinal roots. This was soon followed by the discoveries of Mayo on the localization in the brain of the pupil reflex, and by Lagallois (1826) of the respiratory centre.

Marshall Hall, an Englishman, did some very important work about this time on the nature of the reflex arc, and showed that strychnin convulsions no longer existed in the frog after the destruction of the cord. He also demonstrated the reflex nature of the closure of the sphincters, and showed that it was easier to provoke reflexes by stimulation of the end apparatus than by stimulation of the nerve trunk.

Grainger (1837) showed the relation of the gray matter to the white matter, and postulated the collaterals present in the sensory paths in the cord running to the brain and to different motor roots in the cord.

In 1850 Waller, by his method of nerve degeneration showed conclusively that there was a morphological and functional continuity between the conducting fibre and the nerve cell.

The last twenty years have seen a remarkable advance in the physiology of the nervous system. This progress is owing to the advancement of the neurone theory, which dates from a paper by Wadeyer, who in 1891, summarized the work done on the nervous system up to that time. According to the neurone theory, the nervous system is made up of a series of units, the neurones,



which are not anatomically continuous with each other, but communicate by contact only. The main facts of the theory rest on the brilliant work of Professor His, well known through his embryological studies, who stated that the nerve processes are outgrowths from the nerve cells. By the use of a method of nerve staining, Golgi, and subsequent workers, have found support for the hypothesis in that they can demonstrate the actual branching of the nerve fibres. The theory has received much severe criticism, but nevertheless has been most useful in the advancement of physiological ideas of the nervous system.

More recently Sherrington, of Oxford, has opened up a new field in nerve physiology. By a large series of observations and experiments on mammals, in which the spinal cord was separated from the brain, he developed the ideas of reflex action much further than was possible by using the spinal frog, and has shown the wonderful integrative action which the cord performs on the production of purposeful movements.

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**Lead-Poisoning.**—H. Linenthal, Boston (*The Journal A. M. A.*, June 6, 1914), calls attention to the early diagnosis of occupational diseases, more especially to lead-poisoning. An early diagnosis is essential to protect workers and to gather information as to the prevalence of the conditions. He finds that there is a tendency among physicians to attribute too much diagnostic importance to the blue lead-line on the gums, and the presence of basophilic granules. Lead poisoning presents itself in a great many ways. Its early manifestations are not always clear, but the physician who fails to recognize them very often loses the chance he has of arresting the disease in season. The technical difficulty of detecting the lead in the urine and stools precludes its use in routine examination in general practice. It is, moreover, not constant in these excretions, and if the lead is not absorbed but is excreted, or excretion corresponds to the absorption, no symptoms manifest themselves. It is when the balance is destroyed and the lead is stored up in the tissues that lead-poisoning occurs. A number of cases are reported in which the diagnosis failed to be made on account of the absence of the lead-line or of stippled red cells, notwithstanding that the other symptoms were characteristic. Among the early symptoms, Linenthal mentions especially the skin pallor entirely out of proportion to the actual anemia, the wasting of the fat in the face, general muscular weakness with rheumatic pains in the joints, nausea and attacks of constipation or constipation alternating with diarrhea. Loss of appetite among those exposed to lead from whatever cause is a symptom to be taken seriously, as an empty stomach favors the absorption of lead. General nervousness, persistent headache and dull mentality are also among the earlier manifestations, and with the characteristic colic are often the precursors of the more serious nervous lesions. The history of exposure is an all-important aid to the diagnosis; the physician should make careful inquiry as to the details in the occupation of the patient and should not be satisfied with generalities in regard to this matter.

## ATRESIA RECTO-VESICALIS—REPORT OF A SUCCESSFUL OPERATIVE CASE

By FREDERICK C. HERRICK, M. D., Associate in Surgery, Western Reserve University, Cleveland, Ohio

The following case report of atresia recto-vesicalis is of special interest because of the results obtained by surgical treatment.

In July, 1913, I first saw a male child, five months old, who was brought with the statement that all of its bowel movements took place mixed with the urine.

The past history was as follows: The child was the second in the family, the first being well and normal. Twenty-four hours after birth it was noticed that the urine was very dark colored and cloudy, and on further inspection absence of the anus was found and further that the meconium was passing entirely through the urethra. The child was seen at this time by a physician at Bellevue, Ohio, whose name I was unable to obtain. On the third day after birth an unsuccessful attempt was made to reach the lower end of the gut by incision at the point where the anus should be. Following this Littre's operation, viz: a left inguinal colostomy was made. The child progressed normally, was breast fed and grew fat, but the inguinal wound closed, leaving the condition substantially the same as at birth.

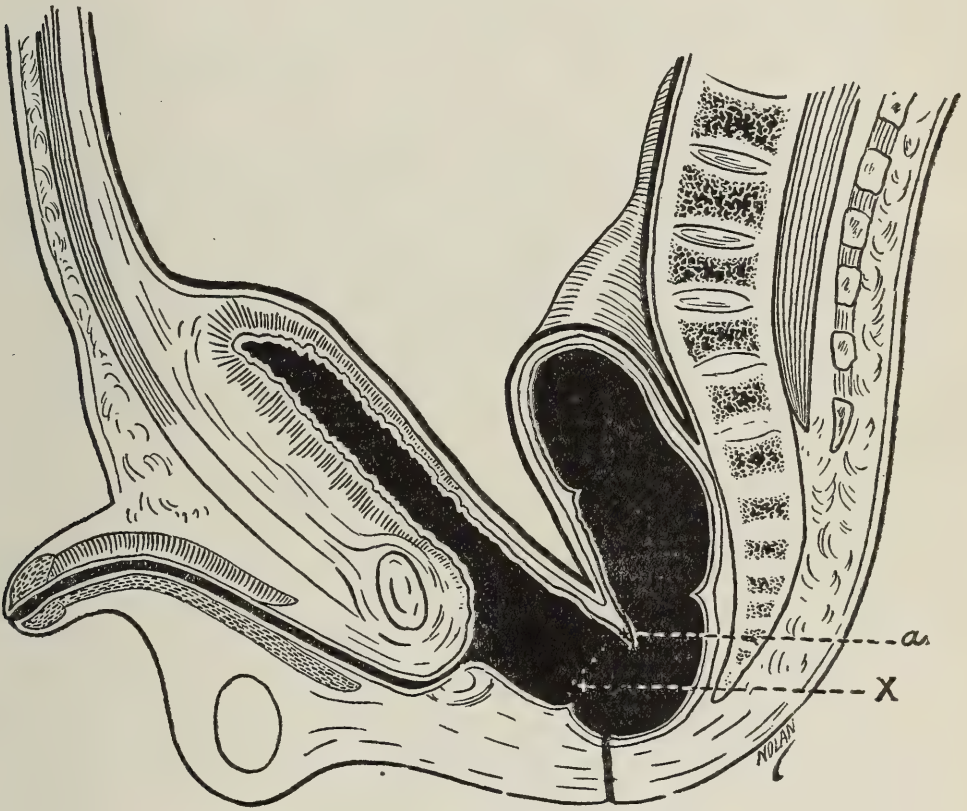
Examination when first seen showed a remarkably healthy, plump boy of five months with a closed wound just above the left groin, a small opening the size of a probe in the region of the anus through which, the parents said, a small amount of dark-colored fluid occasionally appeared. A filiform bougie passed through the urethra could be felt by a small probe passed through this perineal opening.

In operation upon vesico-rectal fistulae the chief difficulty seems to be our inability to close both the rectal opening and the opening in the bladder or urethra at the same operation. Urine invariably finds its way through the stitches in the base of the bladder and into the rectum or to the surface of the perineum.

*Operation.* With this in view, under ether anesthesia a linear incision was made in the anal region, and after extending this an inch up and posteriorly, the gut was reached. The little finger introduced through this incision passed directly into the bladder and it was only by sharply bending the finger and point-



ing it backward towards the hollow of the sacrum that it could be introduced into the rectum. (Fig. I.) An inverted V-shaped incision was now made the same as in prostatectomy, keeping well in front of the anal region. The connection between the rectum and bladder was separated, the rectal wall turned in by two layers of chromic gut stitches, the lower end of the gut was then separated all around and for one-half inch up and brought down and stitched to the skin. The levator ani muscles were united in front of the rectum. A small drainage tube was inserted in the base of the bladder, sutured in place and the wound closed around it. In this way it was hoped to prevent the urine



A. Free edge between rectum and bladder.

X. Position of double layer of transverse stitches closing anterior wall of rectum.

from contaminating the rectal stitches and give free opportunity for healing of the anterior wall of the rectum. Six days after operation the perineal stitches were removed as well as the drainage tube. The wound appeared in bad shape, some of the stitches in the anterior rectal wall gave way and it was feared lest the old condition be re-established. The bowel movements, however, occurred entirely through the new anus and in another ten

days the perineal wound had granulated, closed and the child was passing urine through the urethra normally.

When seen six months later, the child was in excellent condition, all the urine was passed by the urethra and all the bowel movements were passed by the anus. The anal ring was cicatricial and was stretched with a large urethral dilator. This scar formation has been recognized as one of the difficulties following such operative procedures since the sphincter ani is perfect or entirely absent. When the child is older and understands the voluntary control of the muscles and the act of urination, some sort of plastic procedure with the levator ani muscles may aid in establishing control of his bowel movements. Sufficient sphincter muscular tissue may be present to aid in the development of such a sphincter. This presents, of course, a problem for further study.

Cases of congenital atresia of the anus and rectum are sufficiently common to warrant a constant preparedness on the part of the accoucheur to handle at least their emergency treatment. Their frequency is estimated to be one in ten to fifteen thousand births. The monograph of Bodenhamer<sup>1</sup> and the works of Kirby<sup>2</sup>, Grant<sup>3</sup>, Kelley<sup>4</sup> and Treves can be referred to. For an embryological discussion the articles of Keith<sup>5</sup> and Wood-Jones<sup>6</sup> are especially satisfactory.

The following procedures in handling such cases may be suggested:

First. Operation within the first 48 hours of life. Early operation is emphasized by many as absolutely essential to gain the best results.

Second. With the child in the lithiotomy position with the hips highly elevated, a mid-line incision an inch long should be made where the anus should be. Careful extension upward and backward with blunt and sharp dissection should be followed. The blind end of the rectum is always posterior to the peritoneum extending down and back, being a continuation of the post allantoic hind gut. The proctodeum when invaginating meets this hind gut at an oblique angle so that the posterior rectal sinus is represented in adult life as deeper than on the anterior side. It is therefore seen that extension of this dissection up and back is perfectly safe and there is little danger of entering the peritoneal cavity. If the gut is reached, it should be loosened, brought down as far as possible and stitched to the skin.



Third. If unsuccessful in reaching the gut, the operation of Littré, viz: a left inguinal colostomy should be immediately done. A trocar through the perineum has been suggested, but is inaccurate and should not be used. Littré's operation was first suggested in 1710 and was first successfully done by Pilore in 1776 and was first done upon an infant for congenital defect by Dubois in 1783. This operation is, of course, purely a temporary procedure, with the hope of later when the child's nutrition has improved of being able to find the blind end of the rectum draw it down to the anal region and establish, in a measure, a natural opening.

Fourth. Such attempts have been only moderately satisfactory and it is left for plastic surgery in the future to accomplish better results.

#### Bibliography

1. Bodenhamer: *A Practical Treatise on the Aetiol. Pathol. & Treat. of Cong. Malf. of Rectum & Anus.* 1860.
2. Kirby: *Annals of Gyn. & Pediat. of Boston*, 1896-7, X, 755.
3. Grant: *Post-Graduate* Vol. XVI, 727.
4. Kelley: *Surg. Dis. of Children*, page 620.
5. Keith. *Malformations of the Hind End of the Body.* *British Medical Journal*, 1908. Pages 1736, 1804, 1857.
6. Wood-Jones: *British Medical Journal*, 1904, II, 1630.  
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**Gynecology and Obstetrics.**—In his presidential address delivered before the American Gynecological Society, J. Whitridge Williams, Baltimore, criticizes the backwardness of American obstetrics as far as original work is concerned, in an analysis of the published papers presented to the society. He says: "Careful analysis of our transactions has failed to convince me that scarcely a single, fundamental contribution to practical obstetrics has been made to this society, and I feel that you will agree with me when you hear the facts." The proportion of papers that he classes as good or excellent contributions is, according to this showing, lamentably small. The lack of productiveness cannot be due to lack of ability of the individual members but is due in his opinion to (1) the tendency to regard the practice of medicine as an engrossing financial pursuit, (2) to defective ideals and tendencies in medical education and (3) to the divorce in this country of gynecology from obstetrics. One of the most important factors is our medical education systems and he asks, How many of us who hold professorships can truthfully say that we are held to the same accountability as heads of true university departments? In most of our schools the chair of obstetrics is the most poorly equipped and considered only after the others. Lastly, he hopes to see a broadening of the sphere of gynecology to include that of obstetrics as well.

**Hay Fever.**—H. L. Ulrich, Minneapolis, says that hay-fever does not receive the attention it deserves from the practitioner and there is a growing conviction that hay-fever not only is a local manifestation but also involves reactions that bring it into the domain of constitutional disease. He notices the work of Dunbar, who established the fact, that it is a pollen toxicosis, though his pollantin is losing favor as a cure. The active immunity induced by Noon and Freeman is mentioned as well as the demonstration by Clowes of the immune bodies of hay-fever of this country. The clinical picture of the disease is reviewed as described by Bostock, whose description seems, according to Ulrich, to be rather mild in comparison to our autumnal catarrh. Ulrich quotes it, however, to call attention to the irregularity of the symptoms as compared with other infectious diseases which suggest to him more the hypersensibility of nerve and tissue groups to an irregular protein intoxication, the portal of entry of which is the nose. For two years he has been observing ragweed, because he finds that it is the only flowering plant which has a wind-borne pollen during the period between July 1 and September 15. Goldenrod is dismissed as a causative factor because its pollen is not wind-borne. The ragweed pollen is distributed when the sun warms up the air held in its oily envelope and its production is most prodigious. Ulrich is convinced that it is constantly in the air of the country and the city and estimates that 1 gm. contains 172,800,000 pollen grains. He has made extracts according to Dunbar's method and treated twelve cases with considerable success in giving relief from the symptoms. He is convinced from the manner of its production and its short duration that he was producing a refractory or inhibitory phase of hypersensibility. The difficulty of proving this statement lies in the lack of experimental evidence and the growing belief seems to exist that the anti stages of anaphylaxis are more difficult to produce and more temporary than is the case in infectious processes. Ulrich differs from Dunbar, Clowes and some others in believing it to be a protein toxin instead of a microbe. The clinical studies suggest themselves from this point of view. "1. If it can be shown that the muscle-reactions in hay-fever patients are modified just as they are in spasmophiliacs we shall have added another link to the chain of evidence. 2. Recent reports of eosinophilia in animals sensitized to foreign proteins have led observers to think that an increase in oxyphils in the blood is an indication of this condition. If this can be shown to occur in hay-fever, another clinical test can be added to our list. As a matter of fact, Dr. George D. Head has verbally communicated to me that eosinophilia is a common occurrence in those cases giving asthmatic symptoms. In one of my cases under complete control I had the blood studied before and during the season. At no time did eosinophils go above 4.5 per cent." In conclusion, Ulrich says, there are three ways of meeting autumnal hay-fever. 1. The eradication of ragweed. 2. The removal of the patient from the ragweed environment. 3. The production of anti-hypersensibility. The first of these is more practical than is commonly realized. Ragweed can be exterminated. The second method is available only to the favored few, while in the third, he sees a glimmer of hope for the many thus afflicted.

**Cyst of the Appendix.**—A case of pseudomyxomatous cyst of the appendix is reported by H. Hartman and G. C. Kindley, Galveston, Tex., (*The Journal A. M. A.*, June 6, 1914). These cases are either rather infrequent or often go unreported, and their importance depends on the possibility of rupture, which may give rise to the so-called pseudomyxoma of the peritoneum. The patient in this case complained of discomfort in the right iliac region, and said that she had been operated on for movable kidney but without relief. She was operated on again for this supposed condition, but the kidney was found to be normal and the incision was extended and the peritoneum opened, revealing a large cyst, which was successfully removed. The cyst was discovered by palpation, but its true character could not then be diagnosed. The patient made a good recovery.



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## EDITORIAL

### The Ohio State Medical Meeting

The meeting of the Ohio State Medical Association at Columbus was marked by the largest attendance in the history of the association. This awakened interest in medical society work is in no small measure due to the efforts of the present Secretary,

Doctor Selby, and to the changed character of the *Ohio State Medical Journal* under the news management of Mr. Sheridan.

In the past year there has been a co-operation between the council of the state society and those in charge of the publication of the *Journal* which has not previously existed. The accomplishments of the past year as evidenced at the state meeting are a tribute of no mean character to the energy, diligence and intelligent direction given to the affairs of the state society by the Past President, Doctor George Fackler.

Of particular significance is the action of the House of Delegates in providing for a committee to work out the details of medical defense for the members of the association. Medical defense is now in operation in California, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Mississippi, Nebraska, New Jersey, New York, Pennsylvania, North Dakota, West Virginia and Wisconsin, and is under advisement in South Dakota, Texas and Washington. It is, therefore, with pleasure that we report that Ohio is about to establish medical defense and thus to increase the usefulness of the state society to its members.

The declaration of Governor Cox of the attitude of the state administration toward the medical profession, particularly in the matter of the operation of the Workmen's Compensation Act, is the first public expression of the administration of its desire to deal fairly and more liberally with the medical profession in this matter. It is of marked significance that the committee which met with the Governor at his request has resulted in the forming of an advisory committee from the State Association to act with the Industrial Commission in smoothing out the difficulties which have arisen between it and the profession in the operation of the Act.

The exhibit of the State Board of Health which was placed in the registration and commercial exhibit hall at the convention attracted much attention. Those physicians who viewed this exhibit and in whose communities it has not yet been shown should give their hearty support to the Board of Health in its campaign of public education. Certainly there is no community to which such an exhibit cannot be instructive.

The local Columbus profession, through its committees, left nothing undone in providing for the entertainment of the visiting



physicians, their wives and guests. And the hearty invitation of these physicians as well as that of the commercial bodies of that city that the State Association should meet there from year to year was greatly appreciated by the House of Delegates. The time is coming when the association must have a permanent place of meeting, and when that time does come, Columbus will not be overlooked.

Of special interest to us here in Cleveland is the fact that although Cuyahoga County went to the association meeting "care and fancy free," with no object in mind but to have an enjoyable and profitable time, other sections of the state insisted that we enter the lists with presidential timber. We are more than pleased to record the selection of our own Doctor William E. Lower as President-elect.

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**Herudin and Blood Transfusion.**—The use of herudin in the transfusion of blood for preventing coagulation has been studied by H. S. Satterlee and R. S. Hooker, New York, who report their results in *The Journal A. M. A.*, June 6, 1913, Herudin is the active principle of a secretion of the buccal glands of the pondleech, *Sanguesuga medicinalis*, and has been classed by Franz as a secondary albumose. It would appear from the available evidence that it has a decided effect on the prothrombin and antithrombin balance, and that it has a neutralizing action on thromboplastin. The authors give a diagrammatic illustration of this action. There is considerable literature on the experimental use of herudin, and there are some reports on its therapeutic use by intravenous injection for eclampsia; but no mention of its use as an anticoagulant for transfusing blood. The authors say that from their experimental work, it affords a convenient alternative for the paraffin method of transfusing under most circumstances. The amount required is so small that it may not be contra-indicated even in pathologic conditions in which there is an excess of antithrombin or a deficiency of prothrombin in the circulating blood. It would appear from the literature that it is not dangerous by intravenous injection except in large doses. The author's first aim was to determine the minimum amount of the substance that would serve to prevent coagulative changes long enough to permit safe transfusion under the best technic. From their experiments it was estimated that about 3.5 mg. of herudin to 100 c.c. of blood would be requisite, without the aid of paraffin, provided good technic was employed in obtaining the blood free from a mixture of tissue juices. When a paraffin coating was applied to the tip and neck of the transfusion pipet the amount could be reduced by half. These results are shown by a table presented. Directions are also given as to the paraffin coating in the practical application of the method.

## DEPARTMENT OF THERAPEUTICS

Conducted by J. B. McGEE, M. D.

**Nephritis:** Robert N. Willson, in the *International Clinics* (Vol. I, 24th series), discusses the treatment of nephritis. In dealing with the treatment of renal disabilities, it will be necessary at the outset to establish the fact that, except in the case of acute inflammation, we are called upon to handle the results of nephritis, and not nephritis itself, as a concrete thing. Just as certain and vital, therefore, as the damage beyond repair to structures essential to health, and even to life, is the principle that the only effectual treatment of all other forms than acute renal disease, consists in our recognizing the underlying etiologic factors and conditions, and the institution of prevention as the only form and means of cure. He emphasizes three points by way of preliminary: First, that there probably never occurs even in childhood an instance of purely parenchymatous or purely interstitial renal disease; second, and of great importance from the double standpoint of treatment and prognosis, is the too little appreciated fact that the chronic forms of renal disease are usually only portions of clinical and pathological pictures, meaning that usually the same process that has involved the kidney is also attacking the other vital organ, or as in the arteriosclerotic granular kidney, the kidney fibrosis is simply one feature of the systemic circulatory disease. The third point is that in the vast majority of instances, the individual case presents itself for treatment only at a time in which prevention is as frankly out of the question as cure. Even here, however, as always in renal disease the role of the physician is more one of prevention than of cure, of hygiene rather than of medicaments, or mechanical methods. In chronic nephritis the treatment has gradually resolved itself into something other than a misguided attempt to replace the destroyed kidney tissue, or to resurrect an ability to functionate in an organ which no longer possesses the structural qualifications for duty. He states that the cases at least from the standpoint of treatment may be divided into two sharply defined categories, one consisting of patients that can live long and comfortably, provided they follow a prescribed regimen, the other, those which, in the face of every effort, run their course rapidly, and progressively to a fatal close. He outlines treatment as to dietary and rest, and apart from a symptomatic treatment, aimed at the control of the inevitable anemia, and cardiac athenia, medicines will have only a little part to play in the handling of the case. He favors the old position as to the use of mercury here, asserting that except in syphilitic form of nephritis, mercury and especially calomel will prove dangerous instruments. He mentions two instances of calomel poisoning from small doses in nephritis, one resulting in uraemic aphasia, and the other in coma and death. When used at all, probably the blue mass is the safest form to administer, but however given it should be hastened through the bowel by a saline. He knows of no positive indication for its use, and is convinced that it had better be omitted in treating nephritis.

**Liquid Paraffin:** *American Medicine* for April calls attention to the fact that the increasing popularity of liquid paraffin as a laxative is one of the astonishing things in modern therapy. It can scarcely be called a fad or fashion, for its use is based on empiric results. A few years ago no one heard of it, and now its consumption is enormous. No doubt in a short time we shall find contra-indications or bad results which will limit its use, but at present it seems to be a permanent and valuable weapon in the fight against intestinal intoxication, and its myriad fatal sequelae, containing no oxygen, is not saponified or emulsified, and produces no fatty acids to irritate as in the case of olive or cotton seed oil, once so popular. It contains no stimulants to the muscle and has no irritative or osmotic action to increase the fluid content of the feces. It acts purely as a lubricant, supplementing the normal mucus, and thus materially assists the peristaltic action of the muscles. All of it may be



recovered from the feces. The dose varies from a teaspoonful to two tablespoonfuls from one to three times a day, preferably a half hour before meals. It is cumulative in action, and the full effect may not be experienced for several days or even two weeks if small doses are taken, and moreover the results may persist for a week or more after ceasing to take it. There is some evidence that by relieving the strain on the intestinal muscles it actually strengthens them; by removing the irritation of hardened feces it restores the normal mucus; by facilitating evacuations it re-establishes the lost habit of regular and periodic movements; by coating the fecal masses it restricts absorption of poisons; and it is not accompanied by pain, colic or straining. It is easy to take, being devoid of taste or odor, and of the consistency of glycerine. Many object to the oiliness, and various mixtures have been devised to conceal this characteristic, but a little effort will overcome the objection to the pure oil. It must be freed of all sulphur compounds, acids and fluorescent lighter hydrocarbons, all of which are more or less poisonous. It sometimes escapes from the rectum, but the sphincter soon becomes educated. It has been proved useful in simple stasis, visceroptosis, hemorrhoids, mucous colitis, pregnancy and the exasperating constipation of infancy and childhood. We must be on the lookout, however, for contra-indications, for it is a comparatively new remedy, and there has not been sufficient time for all its effects to become known.

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**Intestinal Toxemia:** D. Chalmers Watson, in the *Edinburgh Medical Journal* for April, considers the manifestations and treatment of intestinal toxemia. From a therapeutic standpoint, cases of intestinal toxemia may be roughly classified into three main groups: Group 1—Cases in which the symptoms and physical signs are comparatively trivial, and which yield readily to simple medical treatment. Group 2—In which the symptoms are more pronounced, and are accompanied by marked objective indications of an abnormal state of the digestive tract, but which are amenable to careful and prolonged medical treatment. Group 3—In which the condition of the digestive tract is so abnormal that medical measures fail to relieve, relief being obtained by surgical treatment. Many factors have to be considered in the treatment of these cases, but the keynote of successful treatment is undoubtedly to be found in the application of antiseptic and aseptic principles of practical medicine. The aims of treatment in every case may be summarized as follows: (1) To correct the abnormal bacterial activity in the digestive tract, attention being directed both to the small and large intestine. (2) To correct any associated, or it may be primary toxemia, existing in the upper part of the digestive tract, more especially the teeth, tonsils, gums and stomach. (3) To increase the functional activity of the main channels of elimination of the natural poisons of the body, which in the cases in question are usually produced in excess; more particularly the bowels, kidneys and skin. (4) To raise the general tissue resistance of the body by general means, attention being specially directed to improving the tone of the central nervous system. (5) In appropriate cases endeavor to raise the resisting power of the tissues by the use of vaccines. After noting rest, diet and treatment of the bowels, he states, that an important point in the treatment consists in stimulating the functional activity of the kidneys. A deficiency in the total amount of water, combined with excessive acidity is very commonly met with. A simple and efficient way of stimulating the kidneys consists in the administration of twelve ounces of hot water three times a day, on an empty stomach, preferably in the early morning, one hour before the midday meal, and last thing at night. In cases associated with high acidity of the urine, with the presence of catarrhal cells, benefit is obtained by the administration of urotropin with acetate of potassium, or other alkali. As to vaccines, he is quite satisfied from close observation of many cases that the use of vaccines when carefully administered is of value in supplying the final stimulus required to enable

nature to overcome the effects of the poison. He favors an autogenous vaccine prepared from the *B. coli* strain of organisms obtained from the stool.

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**Digitalis:** In the May number of the *Practitioner*, Sir Richard Douglas Powell treats of the use of digitalis in heart diseases. Digitalis is not efficient in all diseases and disorders of the heart. In acute injuries such as rupture of the aortic valves, in such acute affections as pericarditis, endocarditis, myocarditis, it is of little or only of quite subordinate value. In chronic diseases of the myocardium, of syphilitic, alcoholic, or coronary origin, the use of digitalis is of secondary importance, and is often distinctly contra-indicated. It is in chronic valvular disease with failing power of ventricles that digitalis and in a less degree the class of drugs which it represents are especially indicated. In fatigue of heart after acute disease or strain it is also of great value. But whatever the mechanism of heart failure, it is the disorderly, incomplete action of the ventricles as registered in the pulse and physical signs of the heart, that is the guide to treatment, and given the rest, and diet conditions necessary in all such cases, digitalis is the drug we have to use. In some cases of this form of heart failure the drug may be given in moderate doses amounting to 30 minims a day while the patient is still more or less about. In severe cases it must be given in divided doses up to one dram or one dram and a half of the tincture daily until definite results are obtained in the slowing and regulating of the pulse, with increased flow of urine, and abatement of symptoms. He believes the tincture to be perhaps the most effective of all the preparations. As addition to other tonics in what may be termed the fatigued heart he advises small doses of digitalis, five minims of tincture, the doses amounting to 15 or 20 minims daily for a course of several weeks. He is aware that such small doses are regarded by good authorities as quite inoperative, but this is quite contrary to his experience.

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**Cocain:** William Henry Porter, in the *New York Medical Journal* for April 25th, states as to the value of cocain that in diseased processes and in all profound disturbances of metabolism, in which the normal food products are no longer able to stimulate or excite into full physiological activity the protoplasmic masses of the animal economy when everything is at a standstill, as it were, or even when it is apparent to all that the patient is steadily losing ground, the addition of a half grain or more of cocain three times daily, has in a large number of instances, under his own observation, during the past twenty-five years, produced almost miraculous changes for the better, and in all cases that seemed almost hopeless. In all chronic affections its power for great good cannot be overestimated. During the past ten years he has employed it more and more in the acute diseases. Given early in pneumonia and throughout the disease, the results obtained have convinced him that the chances for recovery are greater than without its administration. The same may be said of all acute diseases, for if it has this great sustaining power that all the evidence seems to prove it has, the power to resist and eliminate the toxins of disease must be greatly augmented. Having prescribed cocain extensively for nearly thirty years, he has yet to see a single person acquire the so-called cocain habit, and in his judgment, cocain is a very valuable remedy in connection with internal medicine, and one which has not received the attention it fully deserves. He usually employs it in combination with caffein and strychnin. Some may say that, used in combination with other substances, one cannot judge accurately as to the true value of a remedy. He calls attention to the fact, however, if the emphasis he has placed on the improvement which followed the use of cocain when all other known remedies had failed. So long as the dose is kept well within the physiological limit, its administration can be followed by only good results, never by bad ones.



**Sciatica:** In the April number of the *Therapeutic Gazette*, F. X. Dercum states that the point of prime importance preliminary to the treatment of sciatica is the diagnosis. This is absolutely a necessary prerequisite. A moment's reflection will convince us that not all patients suffering from pain in the sciatic distribution are cases of sciatica. At the outset the cases separate themselves into two groups: First, those in which the pain is due to neuralgia and neuritis in the sciatic nerve or its branches; secondly, those in which pain arises in the sciatic distribution as a result of lesions elsewhere, e. g., within the pelvis, in the sacrum, or spinal column. In other words, pain in the sciatic distribution may be purely symptomatic, and it is the not infrequent failure to recognize this fact, which is so often responsible for cases regarded as intractable, and hopeless of cure. The first step, therefore, in a given case is to eliminate all possible causes of a symptomatic pain, and to establish the fact of a true sciatica. The problem of treatment resolves itself into, first, the control of the pain, and secondly, the introduction of such measures as will bring about cure. The first indication is met by rest, and whatever detail be instituted, it must be emphasized that in sciatica rest is the most powerful therapeutic agent at our command, and that in given instances, the rest of the affected limb should be made as nearly absolute as possible. After adequate rest is secured, it is his plan, unless special factors present, to make use of the salicylates. The method of their employment and dosage he considers very important. First, they should be given in full doses, and secondly, they should not be given alone, but in association with bromid. He is in the habit of giving sodium salicylate 10 to 20 grains, together with sodium bromid, 20 to 30 grains, every four hours. If the precaution be taken to dilute the dose thoroughly, it is well borne by the stomach. It is of the utmost importance to make a massive impression with the salicylate, in the first 24 to 48 hours, and in the average case the pain markedly lessens, and even disappears promptly under these circumstances. Very soon the doses of sodium salicylate and sodium bromid can be diminished one-half and rapidly discontinued altogether. If at the outset the pain is very severe, there is no objection to giving a quarter of a grain of scopolamin hypodermically to secure sleep at night, but as a rule this is unnecessary. For many years he has relied upon rest in bed, with the salicylate treatment, and this method has been attended by a remarkable degree of success. So satisfactory have been his results from rest and salicylates that quite a number of years have elapsed since he has submitted a case of sciatica to a surgical procedure. In applying rest as a matter of routine, motion should be practiced from time to time at the hip, knee and ankle, and as soon as practicable gentle massage should be instituted. Electricity, of course, may be used.

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**Sodium Cacodylate:** S. H. Ackerman, in the April number of *Merck's Archives*, reports on the action of hypodermic injections of sodium cacodylate in the treatment of ulcers of doubtful origin. He reports a case chiefly because of its very great value in the treatment of ulcerous conditions, especially those of doubtful origin. Not only has sodium cacodylate an undoubted value as an anti-syphilitic, but its general tonic effect, due to its arsenic content, is an advantage not to be gained by any of the usual methods of treatment. If the ordinary precautions of technique are observed, the method is without danger, and does not even temporarily incapacitate the patient. Its rapidity of action is also to be noted. He has also found it very efficient in other obstinate and chronic skin lesions. The case reported was that of a woman with no evidence of syphilitic or tuberculous infection in her personal or family history. She had four sores or ulcers on the dorsum and three on the palmar aspect of the right hand. There were also four of the nodules in different stages of development and several irregular circular scars, the remains of previous ulcers. She had been treated at several institutions, but for a period of several months she had been incapacitated, and at

times the hand was swollen and painful, preventing sleep. The von Pirquet was positive and the Wassermann reaction slightly positive. He injected intramuscularly a solution of sodium cacodylate, starting with one-half grain and increasing to two grains. The injections were given three times a week, and caused no local or general reaction. The lesions were dressed with mercurial ointment. In one week the pain and inflammatory reaction had disappeared, and the lesions showed marked improvement in appearance. In two weeks they were entirely healed, although the nodules beginning to break down did not cease their activity. Treatment was neglected for a time, but a second two weeks' treatment healed the new ulcers and after a third two weeks' treatment all the ulcers have remained healed and no new ones developed.

**Glycosuria.**—In a lengthy article hardly capable of a complete abstract, J. J. R. Macleod, Cleveland (*Journal A. M. A.*, April 18), reviews some of the recent researches on pathologic glycosuria. One of the most important results of the laboratory investigations, he says, has been at least to show that some of the symptoms of diabetes in man can be induced in experimental animals by a multitude of causes. They show that etiologically, inheritance, nervous strain and overindulgence in carbohydrate foods all predispose to the disease, while undoubted benefit can be obtained in different cases by the control of carbohydrates and protein ingestion, respectively. A strict analogy between laboratory diabetes and the clinical forms is hardly possible even in the case of pancreas removal in animals, but light is thrown on many of the problems which the clinical observer has to face. He discusses the question whether glycosuria, which has been chosen as the most characteristic symptom, is properly such and holds that the symptom of hyperglycemia is better for adoption as a criterion. The analogy of the Kidney to the overflow tube of a cistern is not strictly correct and some change in the excretory function of the kidney must be considered as one of the results of the diabetic state. Certain forms of experimental glycosuria seems to be due to no other lesion than one affecting the kidney alone and it is possible that this may be paralleled in the clinical cases, though this he doubts. More recent researches indicate that to keep the sugar content of the blood as low as possible both sugar and carbohydrate in the diet must be regulated and the rate of absorption is the only difference in their action. The decrease of glycosuria due to opium may be to the delay it causes in emptying the stomach and this fact may be also used in a way to explain the good effect of the oatmeal diet in many diabetics. In employing hyperglycemia as our most reliable index of disturbed carbohydrate metabolism, care must be taken to bear in mind the effects of fright, anesthesia, body temperature, etc. It is impossible, Macleod says, to settle the question as to the free or combined condition of the sugar in the blood by chemical examination. The evidence in this line is in favor of its being uncombined. The views of Pavy and Allen in this regard are criticized by him. The pathology of pancreatic diabetes and the influence of the nervous system on the sugar content of the blood and the hormone control of the hepatic sugar output are discussed at length, and he sums up by saying that "we may conclude that the nerve-impulse that brings about an increased discharge of dextrose from the liver does so either by producing in the liver-cells some chemical change which facilitates the action of the glycogenase on the glycogen, or by causing the glycogen masses to become dissociated from the protoplasm so that they become susceptible to the intracellular enzymes, or become extruded from the cell so that they are attacked by the glycogenase which exists in the neighboring lymph and blood-vessels." How the pancreas lesions act in producing diabetes, Macleod says, cannot be settled at present nor can the effect of an internal secretion of the pancreas be considered proved. The general conclusion also which can be drawn, is that there is no evidence as far as experiment shows that the blood of a normal animal, even from the pancreatic vein contains an internal secretion that can restore to a diabetic animal any lost power to utilize carbohydrates.



## NEW AND NONOFFICIAL REMEDIES

Since publicaion of New and Nonofficial Remedies, 1914, and in addition to those previously reported, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Scarlatina, Strepto-Serobacterin, Mulford (Immunizing).—A sensitized scarlatina, streptococcic vaccine, sold in packages containing three doses of killed sensitized streptococci. (The Council has at present no means for determining the identity and purity of serobacterins and these must therefore be used on the guarantee of the manufacturer, alone. (*Jour. A. M. A.*, April 11, 1914, p. 1168.)

Phenolphthalein-Agar.—Phenolphthalein-agar is agar-agar impregnated with phenolphthelein, 100 gm. containing 3 gm. of phenolphthalein. It has the properties of agar-agar augmented by those of phenolphthelein. The Reinschild Chemical Co., New York (*Jour. A. M. A.*, April 11, 1914, p. 1168.)

Causticks (Silver Nitrate, 75 per cent).—Wooden sticks, 1½ inches long, tipped with a mixture of silver nitrate, 75 per cent, and potassium nitrate, 25 per cent. Each stick is to be used but once. Antiseptic Supply Co., New York.

Caustick Applicators (Silver Nitrate, 75 per cent).—Wooden sticks, 6½ inches long, tipped with a mixture of silver nitrate, 75 per cent, and potassium nitrate, 25 per cent. Each stick to be used but once. Antiseptic Supply Co., New York.

Cupricsticks (Copper Sulphate, 60 per cent).—Wooden sticks, 1½ inches long, tipped with a mixture of copper sulphate, 60 per cent; alum, 25 per cent, and potassium nitrate, 15 per cent. Each stick is to be used but once. Antiseptic Supply Co., New York.

Stypsticks (Alum, 75 per cent).—Wooden sticks, 1½ inches long, tipped with a mixture of alum, 75 per cent, and potassium nitrate, 25 per cent. Each stick is to be used but once. Antiseptic Supply Co., New York. (*Jour. A. M. A.*, April 25, 1914, p. 1328.)

Since publication of New and Nonofficial Remedies, 1914, the following articles have been accepted for inclusion with "New and Nonofficial Remedies." Those accepted during the current month are made prominent by the use of capitals:

H. M. Alexander & Co.: NORMAL HORSE SERUM; Typhoid Vaccine, Immunizing.

Antiseptic Supply Co.: CAUSTICKS, CAUSTICK APPLICATORS; CUPRICSTICKS; STYPSTICKS.

B. B. Culture Laboratory: BB. B. Culture.

Farbwerke Hoechst Co.: Amphotropin; EREPTON.

Fairchild Bros. & Foster: Trypsin.

Hoffman-LaRoche Chemical Works: Thiocol; Syrup Thiocol, Roche; THIOCOL TABLETS.

Hynson, Westcott & Co.: Phenolsulphonephthalein, H. W. & Co.; Phenolsulphonephthalein Ampules, H. W. & Co.

Merck & Co.: Cerolin.

H. K. Mulford Co.: ACNE SEROBACTERIN; Anti-Anthrax Serum, Mulford; Antistreptococcus Serum Scarlatina, Mulford; COLI SEROBACTERIN; Disinfectant Krelos, Mulford; NEISSER SEROBACTERIN; PENUMO SEROBACTERIN; Salicylos; SCARLATINA STREPTO SEROBACTERIN; Straphylo-Serobacterin; STRAPHYLO ACNE SEROBACTERIN; Strepto-Serobacterin; Typho-Serobacterin.

Riedel & Co.: NEW BORN YVAL.

Reinschild Chemical Co.: PHENOLPHTHALEIN AGAR.

E. R. Squibb & Sons: SODIUM BIPHOSPHATE, SQUIBB; Tetanus Antitoxin, Squibb.

Aseptic Chemical Co.: Freemann's Russian Mineral Oil. Having been found to comply in all respects with the requirements of the U. S. Pharmacopoeia for liquid petrolatum and not being in conflict with the rules, the Council held Freemann's Russian Mineral Oil an official article not requiring admission to New and Nonofficial Remedies.

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**Lactic Acid Bacilli Gargles.**—E. V. Goltz and W. D. Brodie, St. Paul (*The Journal A. M. A.*, June 6, 1914), report the results of experiments reundertaken by them to determine the value of lactic acid bacilli injections in treating diphtheritic sore throat. Mulford's Bulgarian type cultures of living bacilli were used after testing their activity on agar slants, and naturally soured milk was also used. The nose and throat were sprayed two, three and four times daily with individual atomizers with the bacillus cultures and the naturally soured milk was used as a gargle and as a nasal douche on patients four or five times daily. Six cases and their controls are reported, and the following conclusions given as reached: "The average quarantine period of the six cases reported in which the lactic acid bacillus is twenty days. The average quarantine period of the six controlled cases treated locally only the Seiler's solution as a gargle is sixteen days. The average quarantine period of fifty-seven cases admitted to the hospital during January, February and March, 1914, comprising all cases discharged with the required cultures is twenty-one days. Lactic acid bacilli in our experience hasten the disappearance of diphtheritic membrane, but will not produce cultures negative to the bacillus."



## The Academy of Medicine of Cleveland

### ACADEMY MEETING

The one hundred and tenth regular meeting of the Academy was held permit safe transfusion under the best technic. From their experiments at 8 P. M., Friday, May 15, 1914, at the Cleveland Medical Library with J. J. Thomas, the President, in the chair. The program follows:

#### Cases Presented

Walter G. Stern presented a case of Raynaud's Disease. The patient, a man of 30 years, was first seen some six weeks ago. He complained of pain in the foot and inability to walk. Upon examination, the left foot was found to be cyanotic, and under the base of the big toe there was a large circumscribed patch that was of a deep blue color. There was no pulse in the dorsalis pedis artery. The leg had numerous cold spots. There was a play of colors in the foot, characteristic of angiotropho neurosis. Treatment so far has been rest in bed, the application of Cushney's hypermia, and the administration of nitrites. This treatment has not benefited the patient, and it is now proposed to do a crossed anastomosis between the veins and arteries in Scarpa's triangle. Goodman, of New York, has shown good results following this operation. The etiology of this disease is little known; nicotin, arsenic and lead are mentioned as causative agents, but many cases are found where these poisons can be eliminated. The pathological findings are an inflammation of the inner and outer coats of all the vessels of the part, arteries and veins, starting in the smaller vessels and spreading to the larger.

#### Papers Presented

##### 1. "The Labeling Vice," by S. W. Kelley, M. D.

Some time during the past year there appeared in one of the magazines an article bearing the above title and concerned with the diversified activities of S. Weir Mitchell, physician, author and poet. It was this article that suggested the paper of the evening. Men in any walk of life seldom get credit for knowing, well, more than one thing. Especially is this true of members of the medical profession. If a man is interested and engaged in other activities, if he writes a book, or paints a picture, he is looked upon with suspicion, and it is whispered that he cannot be much of a physician if he can devote time to interests aside from those of his profession. Here it is that we see the injustice worked by the "labeling vice"; the artist, the lawyer, the school teacher, the writer—every one is labeled according to his original calling and we withhold from each credit for any work done out of his "line." We fail to realize the time and the effort the versatile man puts upon his varied works; it may be that he takes his recreation in merely a *change* of work, and we fail to remember the hours we spend at ball games, sitting about smoking, or around the billiard table.

It takes brain to appreciate brain, and great brains like Virchow's, Haller's and S. Weir Mitchell's require brains of equal caliber to really appreciate their worth. The reason why we begrudge credit to the versatile man is three-fold: it lies in our indolence, our mental inability to appreciate, and our vanity.

Again it may be that the greatest talent may be found later in life; after the label has been put upon the man. Is it not possible that the pernicious workings of this "labeling vice" often deter men from following lines of interest in which they have undoubted talent? A man should not remain under his first label, or allow himself to be kept like a slave in the beaten path. Some men cannot be kept down they will not "stay put"; an instance of this is found in the five immortal physicians of the Continental Congress who signed the Constitution of this United States. Men who step out like these disturb our equanimity of mind, our complacency, and our vanity. Think of the loss this world would have

suffered if Hunter, James O'Dyer, Michael Angelo, Lewis Wood, F. Hopkinson Smith, J. Newton Mathew, Weir Mitchell, and countless others, had smothered their spark of genius and had confined their life work entirely to one chosen line!

Then, too, the "labeling vice" may, like a boomerang, return to injure the thrower. By refusing to appreciate all that is good in the work of a man, by shutting up our sympathies, by closing our minds to that which is of worth, we become small and mean. It has been said that he who knows only one thing fails in knowing rightly even that. By the study of history, of our contemporaries, and by keeping alive to the moving forces of the present day, we enlarge our mental horizon and grow in wisdom and understanding.

## **2. Great Artists and Famous Anatomists (Illustrated), by James Moores Ball, St. Louis, Mo.**

Members of the medical profession have always had a serious interest in art, more so perhaps than have the members of any other profession aside from that of the artists themselves. Indeed, this is most reasonable for the same faculties that go to make up a great surgeon also enter into the making of a great artist: the precision of hand, the trained eye, the knowledge of anatomy, and the great gift of imagination. When we realize this, we can understand why so many physicians have become artists, and why so many artists have forsaken art for medicine, and why all along the line we find men who are great both as physicians and as artists. We find that from the earliest times anatomy and art have developed together hand in hand. Among the ancient records of India, China and Greece, we find models showing with rude accuracy the relations of the heart and other viscera. In Greece we find that there were costly and highly ornamental temples built in honor of Æsculapius, the father of medicine. From the beginning, the art of medicine was adorned by the work of the artist, and their interests have developed along similar lines.

Then came Aristotle and Hippocrates, both patrons of art, as was Galen at a much later period. After the dark ages there was Leonardo da Vinci, Michael Angelo, and Andreas Vesalius, all great as anatomists as well as artists. Among the Dutch painters originated the famous anatomical groups, the greatest of which are from the brush of Rembrandt. Later these groups influenced the painting of similar ones by French and English painters, in their respective countries. The Royal Academy of Art had its inception in the founding of the Foundlings' Hospital in London. Other artists who have had a wonderful influence upon anatomy unto even our own day are Eustachio, Bertin and Peter Paul Reubens.

Doctor Ball illustrated his talk throughout with lantern pictures of great artists and anatomists of every age, with famous pictures of anatomical subjects, and with a number of anatomical plates from the works of Leonardo da Vinci, Vesalius and others.

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## **CLINICAL AND PATHOLOGICAL SECTION**

The one hundred and second regular meeting of the Section was held Friday, May 1, 1914, in conjunction with the Charity Hospital Medical Society, at 8:30 P. M., in the Charity Hospital amphitheater.

N. P. McGay, President of the Charity Hospital Medical Society, in the chair. The program follows:

### **Presentation of Cases**

#### **1. Presentation of Cases Showing Various Forms of Lues, by W. H. Merriam.**

A woman, past middle life, came to the dispensary a year and one-half ago complaining of dyspnoea and pain in the chest. Percussion revealed a dilatation of the transverse aorta; the urine contained albumin



and hyaline and granular casts. An X-ray showed the heart to be in a transverse position and displaced to the left, and a dilatation of arch and the descending portion of the aorta. Notwithstanding the fact that two Wassermann reactions were negative, a diagnosis of lues was made upon the subjective symptoms and the physical signs. Up until two weeks ago the treatment has been principally rest; the patient has shown considerable improvement and is now able to do a moderate amount of work with comparative comfort. Two weeks ago anti-syphilitic treatment was begun.

The second case was a woman, aged 30, who gave a history of previous luetic infection. Two years ago she began to have shooting pains in the legs which were quickly followed by ataxic symptoms. When first seen she presented a complete picture of tabes; tactile sensation was greatly diminished all over the body; the skin and tendon reflexes were gone; Argyll Robertson pupil; inability to walk; strongly positive Wassermann.

Under anti-syphilitic treatment the case has shown rapid improvement; tactile sensation has improved, as has the ability to walk. In this case it is doubtful if we are dealing with a true tabes, as it is impossible to conceive a regeneration taking place in the posterior columns of the cord; it is possible that we are dealing with an acute luetic involvement of the cerebro-spinal system.

The third case was that of a negro, aged 28, who admitted a Niser infection 10 years ago, but who had no knowledge of a luetic infection. He came under observation September 13, complaining of stiff neck. Movement of the head from side to side caused excessive pain, but movement in an antero-posterior direction gave no great discomfort. Tuberculosis of the cervical vertebrae was excluded, as no tubercular involvement could be demonstrated in the lungs or elsewhere in the body. Diagnosis of luetic involvement of the cervical vertebrae was made. The Wassermann was strongly positive. X-ray showed an involvement of the anterior part of the atlas, the bone being thickened and roughened. His symptoms have entirely disappeared under KI and an aqueous solution of bichlorid, though an X-ray of recent date shows but slight improvement of the lesion on the atlas.

As a prelude to cases just presented, Doctor J. J. Thomas showed a number of cases of congenital lues in babies from St. Ann's Maternity Hospital.

## **2. Presentation of a Case Showing After Results of Ligation of the Innominate Artery, by C. A. Hamann, M. D.**

Woman, past middle life, in whom examination revealed an aneurysm of the right subclavian artery. Rest in bed, the administration of KI, and the introduction of silver wire into the walls of the aneurysm did no good. In operation the clavicle was removed to afford an easier access to the artery, and the innominate artery was ligated with double-braided silk at a point three-quarters of an inch below the bifurcation. A marked atheroma of its walls was observed when the ligature was drawn tight. The right common carotid was also tied to prevent secondary hemorrhage through the circle of Willis. Collateral circulation was promptly restored and the patient made an uneventful recovery. This is the fifty-third instance in the literature of the ligation of the innominate artery; of these there are 14 recoveries reported.

## **Presentation of a Case of Myositis Fibrosis, by Richard Parker Bell, M. D.**

The patient, a married woman of 22, gave a history of puerperal infection after the birth of her child, two years ago; vaginal discharge since birth of child; pain and stiffness in certain muscles of body with restriction of movement; periods of remission of symptoms. Examination showed the joints to be restricted in movement, while the X-ray showed that they were in all respects normal. Skin is smooth, pale and somewhat atrophic; discoloration about eyes and forehead. There is an atrophy of the muscles of the upper arm, shoulder-joint and chest wall. Muscular movements are so restricted that the patient cannot arise un-

assisted from a sitting posture, nor can she bend over to fasten her shoes. She can walk fairly well, providing that she is put on her feet and has on shoes; she cannot cross one leg over the other. The erector-spinae muscles are rigid and firm to the touch; there is no movement of the back from the cervical region down. The mouth can be opened only one inch, and the neck and throat muscles are so affected that she has difficulty in swallowing anything except liquids. The movements of the arms are restricted so that she is unable to touch the face with the left hand, and with the right hand she can just touch the cheek; in lifting the arms from the sides there is no motion possible above a right angle position. The tendon reflexes are diminished and there is a lessened muscular response to electrical stimulation. The diagnosis of myositis fibrosis was made based upon pain in the various groups of muscles followed by stiffness, rigidity and restricted motion, upon the pathological examination of a specimen taken from the biceps muscle, and upon the presence of an endometritis. Upon treatment with thyroid extract she has shown considerable improvement, greater freedom of movement, and although she exhibits no greater ability to open the mouth, nevertheless she is able to eat solid food.

### **3. Presentation of Several Cases of Chorea, by A. A. Jenkins, M. D.**

Two male children were shown who had presented nervous and rheumatic symptoms of endocarditis, with considerable anemia. These at present showed great improvement under the administration of salicylates and iron.

**Case of Erythema Nodosum.**—The patient, male, Hungarian, aged 42, was seen April 2, complaining of pain in the feet. His feet and legs were cyanotic, swollen and painful, with considerable local heat. He was also badly constipated. Treatment: salts, rest in bed, milk diet, salicylates and KI, to which he responded quickly and now is practically well.

### **4. Presentation of a Case of Atresia Recti Vesicalis, by F. C. Herrick, M. D.**

Male child, five months old, in whom all bowel movements took place mixer with urine. After birth it was noticed that the meconium was passed through the urethra and that there was an absence of the anus. At this time, three days after birth, a physician of Bellevue made an unsuccessful attempt to reach the lower end of the gut by incision at a point where the anus should be. Following this a left inguinal colotomy was made, but this shortly afterward closed and left the condition substantially the same as at birth. An operation was done which aimed to close both the rectal and the vesical openings and at the same time to establish a new anus. A linear incision was made in the anal region through which both the bladder and the rectum could be reached; this was further aided by an inverted, V-shaped incision well in front of the anal region as in prostatesctomy, and the connection between the bladder and rectum was severed; the bladder wall was turned in by two layers of chromic gut. The lower end of rectum was then drawn down and stitched to the skin, and the levator ani muscle was united in front of the rectum. Following the operation the child passed all the feces through the new anus and the urine as normally through the urethra. After sixteen days the perineal wound had granulated and closed. Six months later the child was in excellent condition; the anal ring was contracted and was stretched with a large urethral dilator. There is still the problem of establishing a voluntary sphincter control.

### **(b) Presentation of a Possible Case of Splenic Leukemia.**

Patient, a girl, aged 14, with good personal and family history, and no history of trauma, who at the age of 11 had a hemorrhage from the stomach amounting to 2 or 3 pints of blood. Before this she had had distress before and after eating and gave a very characteristic history of



ulcer of the stomach. She was seen after her third hemorrhage, at which time she was having also eructations of food. Blood count showed 1,400,000 reds and a hemoglobin content of approximately 30 per cent; a differential count showed polymorphonuclears 59 per cent, large mononuclears 25 per cent, small mononuclears 11 per cent, eosinophils 4 per cent, poikilocytosis, and polychromatophilia. Her temperature was 97 degrees, her pulse 74, and her appearance very anemic. The spleen was palpable. Treatment was directed toward the hemorrhage with the result of the complete cessation of symptoms from October to January and an improvement in the blood condition. On January 15 she had another hemorrhage and it was deemed advisable to make an exploratory operation. The stomach was found to be negative; the spleen was large, rough, and appeared to be infiltrated with white fibrous tissue; the liver was normal. At present the patient's condition is somewhat improved, but the spleen is still enlarged. It is believed that this is an early stage in Banti's Disease, or splenic anemia. Vicarious menstruation was thought of, but was ruled out on the ground of the age of the patient. Peptic ulcer was likewise ruled out. There was no purpura. The patient has failed to develop sexually. It is to be remembered that there are three recognized stages of Banti's Disease. The first stage may be of long duration; from one to fifteen years, and is characterized by a large spleen and hemorrhages at various times. This stage is frequently overlooked, and it is possible that the patient is in this stage. The second stage is characterized by anemia of a chlorotic type with a relative lymphocytosis, leukopenia, and a pigmenting of the skin.

#### **5. Presentation of Some Cases Worth While, by J. P. Sawyer.**

The first patient came under observation more than a year ago. He had lost 15 pounds in weight, and had a polyuria, passing on an average about 9 quarts in 24 hours. The urine showed a sugar content of 5.7 per cent. A test meal showed the existence of a catarrhal gastritis, associated with hyperchlorhydria. He was given the Laube treatment as for ulcer of the stomach to relieve the gastric catarrh. From this he was gradually returned to a full diet. For more than a year there has been no trace of sugar in his urine and he enjoys a most liberal diet. He avoids sugar, pastries and other rich foods, but aside from these he eats largely of starch diet, potatoes, white bread, etc. He has regained full muscular vigor and the polyuria has disappeared. A catarrhal gastritis can cause a great variety of mal-nutritional disturbances and in this instance it was well worth while to treat the gastric condition.

The second case presented, a man, was first seen two years ago. At that time he had considerable weakness, pain under the arms and a husky cough. A thrill was palpable over the heart and an aneurysmal bruit was heard in the same location. An X-ray confirmed the diagnosis of the aorta. Lues was ruled out. The patient was put to bed for six weeks and was given KI to reduce the blood pressure. Exercise was gradually increased and at the present time he is in good health and is actively engaged in his work as a barber. A recent radiograph shows a great reduction in the size of the aorta.

This case indicates the clinical advantage of giving these cases prompt treatment.

#### **6. (a) Demonstration of a Specimen of Kidney Showing Bullet Wound.**

##### **(b) Presentation of a Case of Cervical Rib.**

**By F. E. Bunts.**

(In the absence of Doctor Bunts, the specimen and case was presented by U. V. Portman.)

The kidney was taken from a man who had been shot in the abdomen. The wound was just below the costal margin in the preaxillary line. Where the bullet had passed through his shirt there was missing a cir-

cular portion of its fabric about an inch in diameter that was nowhere to be found. The man was put to bed and under observation; the first day there was no sign of hemorrhage; the second day there was a slight rise in temperature; on the third day he had a higher temperature and there developed a pain in his back; on the fourth day there was noticed a tumor in the left lumbar region. The man was operated and an abscess was evacuated; the bullet and the missing piece of cloth were found imbedded in the muscles of the back. The bullet had penetrated and passed through the kidney and that organ was removed. The man made an uneventful recovery.

The case of cervical rib was in a woman, aged 57. She had been bed-ridden for a year and one-half with pain in the spine, the scapula and the shoulder. She held the head to one side; for the past year she had been unable to lift ordinary objects. She presented a small palpable pulsating tumor in the clavicular region. An incision was made parallel to the clavical and along the side of the sternocleidomastoid muscle. A cervical rib was found protruding and riding in a notch upon the same was the subclavicular artery. The offending rib was removed and the patient made an uneventful recovery.

#### **7. The X-Ray in Stomach Work, by G. F. Thomas.**

This was a lantern demonstration of a large number of X-ray plates. Among them were the hour-glass stomach; stricture of the pylorus; pyloric spasm; carcinoma of the esophagus, and of the stomach, and gall-bladder; gall-stones; cervical ribs; and dilatation of the aorta and many others.

8. E. P. Monaghan presented the liver from a case of a large subdiaphragmatic abscess of the liver.

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### **COUNCIL MEETING**

At the meeting of the Council of the Academy of Medicine, held Wednesday, May 13, 1914, at the Bismarck, the following members were present, the President, J. J. Thomas, in the chair: Doctors Kopfstein, Lueke, Marine, Birge, Way, Updegraff, Houck, Yarian, Storey, Gallagher and J. E. Tuckerman.

The minutes of the last meeting were read and approved.

On motion, the following applications were elected to membership: Active—Richard L. Cameron. Associate-Veterinary—Wm. J. Classey, F. L. McCollister.

On motion, the names of the following applicants were ordered published:

Active—Ward C. Bell, Walter Peters. Associate-Veterinary—R. A. Greenwood, Painesville, O.

On motion, James D. Hobson, of Flushing, Ohio, was transferred to non-resident membership.

As a mark of esteem, the name of O. B. Campbell was ordered transferred to the non-active list at the end of the present year.

On motion, the Council appointed H. L. Sanford and J. E. Tuckerman to represent the Academy in the Cleveland Welfare Council.

On motion, the Council appointed the following members to act as a committee to accept the invitation of Howell Wright to inspect the City Hospital at a time to be agreed upon later: Lueke, Updegraff, Bernstein, Yarian, Storey, Kopfstein, Merriam, Walter Stern, Moorehouse and J. E. Tuckerman.

On motion, the Council reconsidered the action taken in placing E. P. Carter on the non-active list.

On motion, the Secretary was directed to give a report for the delegates that attended the Ohio State Medical Association at Columbus.



## BOOK REVIEWS

**A Treatise on Diseases of the Skin.**—For the use of advanced students and practitioners. By Henry W. Stelwagon, M. D., Ph. D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Seventh edition, thoroughly revised. Octavo of 1250 pages, with 334 text-illustrations, and 33 full-page colored and half-tone plates. Philadelphia and London. W. B. Saunders Company, 1914. Cloth, \$6.00 net. Half Morocco, \$7.50 net.

The seventh edition of Stelwagon's work on Diseases of the Skin has just appeared and with 334 illustrations in the text and 33 full page colored and half-toned plates.

For several years Dr. Stelwagon's book has been the standard work in English on dermatology. Carefully prepared by one of the most competent dermatologists in America, it has been kept abreast of increasing knowledge, and the present volume is the work of many years of labor. Passing through various editions Dr. Stelwagon's book has always contained the essentials of the subject. It is sufficiently concise without sacrificing clearness, and while it may be considered complete it is not encumbered with the obsolete or with irrelevant dissertations. On account of the active investigations given to many of the diseases herein treated of, notably syphilis, leprosy, sporotrichosis, pellagra, and some of the tropical affections, which to American physicians are becoming more and more important since our occupancy of tropical countries, have been greatly enlarged upon since the previous edition appeared. Other diseases which have hitherto not been mentioned in book form, such as prurigo nodularis, granuloma pyogenicum, some of the benign sarcoids and keratosis blenorrhagica, are here treated of in detail. This large amount of additional material necessitated an entire recasting of the text. Many new illustrations have been added, notably those of leprosy, prurigo nodularis, oriental sore, dermatitis vegetans, several forms of impetigo contagiosa, together with Sabouraud's cultures, showing the principal ring-worm fungi.

Seventy-six pages are given to syphilis, together with thirty-five illustrations, some in color. It is an open question how much attention should be given to syphilis, but how little will suffice for a general work such as the present volume. Syphilis contributes such a large percentage of disorders of the skin that no text book, however abbreviated, can think of omitting it. On the other hand, the subject is so vast and its importance second to none, greater than tuberculosis, that once the subject is attacked it seems a pity not to pursue it to the limit. However, a work of this kind must also have its limitations as to size, and the present work fulfills in a conservative way the subject of syphilis viewed from the standpoint of the dermatologist rather than from the syphilographer.

In selecting a book on an extensive subject, such as is here treated of, the mistake is often made in procuring a synopsis rather than a full treatise.

Taking it all in all, we have in Doctor Stelwagon's book one that may be most highly recommended to both students and practitioners of medicine.

W. T. C.

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**Medical Gynecology.**—By S. Wyllis Bandler, M. D., Adjunct Professor of Diseases of Women, New York Post-Graduate Medical School and Hospital. Third thoroughly revised edition. Octavo of 790 pages, with 150 original illustrations. Philadelphia and London. W. B. Saunders Company, 1914. Cloth, \$5.00 net. Half Morocco, \$6.50 net.

Many "medical gynecologies" are merely treatises upon sex hygiene, or upon certain phases of sociology. Some authors, in avoiding that Scylla, fall upon the Charybdis of writing surgical works instead of truly medical ones. The volume before us is worthy of honor, because it has escaped both perils.

The work appears in its third edition, and we are told that it has been "thoroughly revised." This claim seems well made, for most of the material is quite up-to-date. Yet certain sections seem a little more antique than others. For example, much good recent work upon the histology of gland changes in the endometrium does not seem to have influenced the sections upon that subject. Again, one might wonder that a work with "1914" upon its title-page should not refer in some way to the therapeutic effects of radium and other allied substances. The modern views are, however, presented throughout the bulk of the book. This is well illustrated by the splendidly up-to-date chapter on "Internal Secretion." Probably this topic comes in for more thorough treatment in the book than does any other. Again and again, even in other sections, the author goes back to the influence of internal secretions from one gland or another upon gynecological conditions. The topic appears to be something of a hobby with the writer; but his treatment of the whole subject is excellent, forming one of the strongest features of the book.

Possibly a mild criticism might be registered against what seems a slight lack of proportion among the various topics treated. The excellence of the text cannot fairly be measured by the mere number of words. Yet even in medical gynecology, a work of 790 pages might reasonably be expected to devote more than 16 pages to the entire subject of cancers of all kinds. Fibroids might also seem worthy of more than the nine pages here devoted to them. Contrast with these meager sections the one of 56 pages devoted to "Internal Secretions."

These faults are not serious in so excellent a work, however. The arrangement is good; the pictures are fine, and the sections on treatment are, as a rule, most admirable. A better book for the practitioner would be hard to find.

J. T. S., Jr.

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**Case of Histories in Pediatrics.**—A collection of Histories of Actual Patients selected to illustrate the Diagnosis, Prognosis and Treatment of the Diseases of Infancy and Childhood. By John Lovett Morse, A. M., M. D., Associate Professor of Pediatrics, Harvard Medical School; Associate Visiting Physician at the Infants' Hospital and at the Children's Hospital, Boston. Octavo, 639 pages. Illustrated. Price, ..... W. M. Leonard, Publisher, Boston, Mass.

In this second edition of this book the author has evidently aimed at producing a handy working volume for the general practitioner as well as the student, and has most successfully accomplished this end. The book is most complete. The first 60 pages are devoted to the normal development and the physical examination of infants and children. All the annoying, time-taking detail is omitted, which is present in text books. This adds a great deal of value to the volume. The accompanying plates of the physical examination are most practical and helpful. The very complete index is another commendable part of the book and makes it extremely useful as a reference book. The Case Histories, numbering 200, include every condition which is likely to be met in the handling of infants and children. In each case the facts are given, conclusions drawn and the treatment prescribed in a concise manner applicable to any child a physician may come across in his practice. Such practical books as this will rapidly supplant the classical text book as a working basis for the clinician and the student.

C. W. W.

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**An Introduction to the History of Medicine**—with Medical Chronology, Bibliographic Data and Test Questions, by Fielding H. Garrison, A. B., M. D., Principal Assistant Librarian, Surgeon General's Office, Washington, D. C. Illustrated. Philadelphia and London. W. B. Saunders Company, 1913. Pp. 1-16, 17-763. Price, .....



Members of the profession interested in medico-historical literature will welcome this work, which may fairly be called the First American History of Medicine. Its author is the principal assistant librarian of the office of the Surgeon General, and though the work does not bear the *imprimature* of that office, it comes to us with the *prestige* of an authority to which we have been long accustomed to look with respect and confidence.

The book consists (excluding the appendices) of 667 octavo pages and cannot, therefore, be regarded as an exhaustive treatise upon the subject indicated. Indeed, the inclusion of "Test Questions" would seem to suggest that the design of the author was rather to furnish a convenient hand-book for educational use in our colleges and universities. However this may be, it is fair to say that the book contains, within its moderate compass, a larger, better selected and better arranged collection of medico-historical facts than any work of equal extent yet published.

Beginning with an interesting chapter on the identity of all forms of primitive and ancient medicine, the author discusses, in the usual chronological order, ancient and medieval medicine, in chapters often brief and concise, but containing the more essential facts arranged in logical order and followed by a clear exposition of the medico-social relations of each period. If one were disposed to be critical, he might perhaps suggest the advantage of a trifle more of light and shade in these early chapters, but, on the whole, they are accurate and instructive.

With the Renaissance the author's style becomes less restrained and more attractive, and the chapters discussing the medicine of the Fifteenth, Sixteenth, Seventeenth and Eighteenth Centuries are in all respects excellent.

The last half of the entire work is devoted to the medicine of the "Modern Period," the Nineteenth and early years of the Twentieth Century, and is really the *pièce de résistance* of the book. Here a full and accurate knowledge of his subject, a clear and pleasant style, the command of the largest and most complete collection of medical literature in the world and the improved historical perspective afforded by the lapse of time and the wonderful acquisitions of medicine during the last quarter of a century, these all combined, have enabled the writer to present a picture of medicine of our own time quite unique and admirable. This chapter alone is worth the price of the entire work.

The bibliographic references are numerous and accurate, and may be regarded as one of the most useful features of the book.

Another very attractive feature of this history is its large collection of good pictures of many of the medical coryphees of the past and present ages. These serve not only to lighten the task of the reader, but to likewise illustrate the text. The haughty air of Paracelsus, the refined, almost feminine, features of Sydenham, the tense, thoughtful and manly face of John Hunter, the cynical half-smile of Ricord and the bright, gentlemanly countenance of Auguste Nélaton allure us to pleasant reveries in physiognomy.

The Appendices contain a chronological table of about forty pages, after the style of Sprengel, and useful *sich orientiren*, to employ an expressive German phrase; a bibliographic compendium of considerable value, and a few pages of "Test Questions," designed apparently for scholastic work in our medical schools.

Two good indexes (nominal and subject) complete the book and render consultation of the text easy.

The press work and proof reading are well done, and the book presents an attractive appearance. It may be heartily commended to all physicians interested in the historical side of medical literature.

H. E. H.

## ACKNOWLEDGEMENTS

The United States Public Health Service.—By W. C. Rucker, M. S., M. D., Assistant Surgeon General, United States Public Health Service. Miscellaneous Publication, No. 13.

Public Health Reports, Vol. 29, No. 20, United States Health Service.

What the Farmer Can Do To Prevent Malaria.—By R. H. von Ezdorf, Surgeon, United States Public Health Service. Supplement No. 11 to the Public Health Reports.

Treatment of Syphilis. Comparison of the number of days hospital treatment required for patients suffering with syphilis, with and without the use of Salvarsan or Neosalvarsan.—By W. G. Stimpson, Assistant Surgeon General, United States Public Health Service. Supplement No. 13 to the Public Health Reports.

Rocky Mountain Spotted Fever. A report of its investigation and of work in tick eradication for its control during 1913.—By L. D. Fricks, Surgeon, United States Public Health Service. Reprint No. 169 from the Public Health Reports.

Public Health Administration. The factors upon which its efficiency depends.—By W. C. Rucker, Assistant Surgeon General, United States Public Health Service. Reprint No. 171 from the Public Health Reports.

An Open Letter to Owners, Agents, and Masters of Lake and River Vessels.—By Rupert Blue, Surgeon General, United States Public Health Service. Reprint No. 174 from the Public Health Reports.

Quinine Prophylaxis For Malaria.—By H. R. Carter, Senior Surgeon, United States Public Health Service. Reprint No. 175 from the Public Health Reports.

The Infectious Diseases. Recent additions to our knowledge of their etiology.—By John F. Anderson, Director, Hygienic Laboratory, United States Public Health Service. Reprint No. 179 from the Public Health Reports.

The Pollution of Tidal Waters. Its bearing on health and importance to the state of its control.—By Hugh S. Cumming, Surgeon, United States Public Health Service. Reprint No. 181 from the Public Health Reports.

Screening as an Antimalarial Measure.—By H. R. Carter, Senior Surgeon, United States Public Health Service. Reprint No. 183 from the Public Health Reports.

Endemic Goiter. Its possible relationship to water supply.—By Taliaferro Clark and Claude C. Pierce, Surgeons, United States Public Health Service. Reprint No. 184 from the Public Health Reports.

Report of Sanitary Survey, St. Joseph, Mo.—By J. H. White, Surgeon, United States Public Health Service. Reprint No. 185 from the Public Health Reports.



## MEDICAL NEWS

**Opening of the Children's Fresh Air Camp.**—Mr. Elroy M. Avery, president of the Children's Fresh Air Camp, sends out the following announcement and invitation to the members of the medical profession concerning the opening of this camp for the admission of sick and ailing children, on Thursday, June 25th.

Under the medical directorship of Doctor Samuel W. Kelley and Doctor A. B. Schneider, we have a complete medical organization (including consultants, visiting physicians, visiting surgeons, specialists, resident physicians (internes), and nurses of which the camp feels very proud.

It is desired that the medical profession feel free to make use of the facilities that the Camp offers for the class of children for which it exists. Children recommended will be received and cared for to the full extent of the camp's resources and blank applications for admission of such children will be sent to any member of the profession upon request.

The camp has ample grounds, buildings, fine shade, abundant and wholesome food and will seek to furnish not only medical attendance, but careful supervision and motherly care.

A personal visit by members of the profession to the camp would prove interesting and all are cordially invited to make frequent visits at their convenience, in any daylight hour of any day in the week.

It is the hope that the camp may be of some direct help to members of the medical profession in giving health and strength to some who need ministrations, whether they are able to pay therefor or not.

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**Meeting of the Northern Ohio Druggists' Association.**—A very pleasant affair was the "get together dinner and entertainment" arranged by some of the pharmacists of Cleveland, under the auspices of the Northern Ohio Druggists' Association. The dinner was held at Wohl's Restaurant, Wednesday evening, May 20, and more than fifty physicians and druggists attended.

When the diners had been seated, Mr. Otto Muhlhan, president of the Druggists' Association, welcomed them heartily and said that to his knowledge, this was the first affair of the kind held in Cleveland, and he hoped it would be followed by many like it. Mr. Muhlhan called attention to the economic changes in the past years that had forced the druggist to adopt many side lines, until his professional work seemed but a small part of his business, none the less, he is a professional man at heart, and more than ever before doctor and druggist are realizing that their mutual interests and the best interest of the public demand that physicians be free to diagnose and treat disease, while depending upon competent pharmacists to be the compounders and distributors of drugs and medicines.

Professor William C. Alpers, Dean of the Cleveland School of Pharmacy, was introduced as "one of the pharmacists of America." Speaking as a practical pharmacist of more than thirty years' experience, he said he wanted to remind the druggists present that they must not neglect the practice of the art they were taught, that of scientific pharmacy, and that such practice will not hinder them from being just as successful business men as they care to be. He assured the physicians present that pharmacists today are being better trained than ever, and practically trained. Inasmuch as this was a "propaganda" dinner, Professor Alpers took occasion to point out also that the formulae in the U. S. Pharmacopoeia and the National Formulary resulted from the consensus of opinion of hundreds of collaborators. The personnel of this body of revisors is made up of chemists, pharmacists and scientists of national and international reputation. These men try out practically every suggested change or modification of a formula, and hence every formula in the Pharmacopoeia or the National Formulary is there because after

careful deliberation the majority of these experts voted to have it there, and the method of preparation prescribed is the method that has proven the best after exhaustive experiments by these men. This makes it evident, said the speaker, that pharmaceutical manufacturers are not likely to have a better method of making these preparations, and that any competent pharmacist can for the most part make them.

Mr. Carl Winter, secretary of the Northern Ohio Druggists' Association and chairman of the Committee on Propaganda of the National Association of Retail Druggists, explained the U. S. P. and N. F. propaganda and the "get together" movement. After explaining how various economic causes had brought about during the past twenty years an estrangement between doctor and druggist, he pointed out how this movement participated in by the physicians and druggists in all parts of the country is gradually bringing them closer together again. He also showed how physician and druggist acting together could secure legislation for the public good.

Doctor J. J. Thomas, president of the Cleveland Academy of Medicine, expressed his appreciation of the meeting. For himself and the majority of the medical profession of the city, he promised the druggists hearty coöperation in the work they had undertaken. Brief congratulatory remarks were also made by Doctors McGee and Steuer for the physicians, and Messrs. Selzer, Lehr and Gleim for the druggists.

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**Doctor G. N. Stewart Lectures in London.**—Advanced lectures in physiology, consisting of a course of eight lectures on "The Rate of the Blood-flow in Man in Health and Disease," were given in the Physiological Laboratory of the University of London, South Kensington, by G. N. Stewart, M. D., professor of experimental medicine, Western Reserve University, Cleveland, U. S. A., at 5 p. m., on Tuesdays, May 5th, 12th, 19th and 26th, and June 2nd, 9th, 16th and 23rd, 1914.

### Syllabus

*Methods.*—(1) of measuring the output of the heart. (2) of measuring the flow in particular parts.—Detailed description of the Calorimetric method as applied to the measurement of the flow in the hands and feet. General discussion of the interpretation and correlation of results obtained by (1) and (2).

*Results on Normal Persons.*—The range in the observed rates of flow in normal persons and in the intensity and duration of reflex vasomotor effects. The influence of various factors on the flow—especially the external temperature, the age of the subjects, muscular exercise, previous anaemia or congestion of the part produced by bandaging, the taking of alcohol, forced breathing. The effect on the blood-flow in the hand of applying different pressures to the upper arm, and the bearing of this on the technique of the clinical measurement of blood pressure.

*Results on Clinical Cases.*—The range in the observed rates of flow in clinical cases and in the intensity and duration of reflex vasomotor effects. Discussion of the results and deduction of certain general conclusions from the measurements of the blood-flow (and vasomotor reflexes) in the anaemias; in fever (typhoid, pneumonia); in inflammation; in certain pathological vascular conditions (Raynaud's disease, arteritis, arteriosclerosis, aneurism); in cardiac diseases (myocardial and valvular lesions); in diseases and injuries of the nervous system (peripheral neuritis, hemiplegia, progressive muscular atrophy, bullet wound of the brain, etc.); in certain diseases of the respiratory organs (pulmonary tuberculosis, pulmonary emphysema—pleural effusion); in Graves' disease, etc. Study of the expansion of the collateral circulation in the right hand in a case of successful ligation of the innominate and right common carotid arteries for aneurism of the



subclavian. Study of vasomotor reflexes elicited by warmth and cold from regions devoid of warmth and cold sensations.

The lectures, which were illustrated by experiments, were addressed to advanced students of the University and others interested in the subject.

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**Cincinnati Experimental Surgical Research Laboratory.**—Over eight hundred persons have been in attendance on the Saturday evening lectures at the Experimental Surgical Research Laboratory in Cincinnati since they were instituted January 31. A very comprehensive course of studies was presented to the local physicians, comprising many of the newer discoveries in medical and surgical science. Among the local men engaged were Doctors Rockhill, Kwick, Kramer, Landis, Juettner, Howard, Ayres, Ricketts, and Ralph Reed. Out-of-town men of prominence were Ball, of St. Louis; Barkley, of Lexington; Vaughn, of Detroit; Hertoghe, of Antwerp, Belgium; and Les-Pinasse, of Chicago. The laboratory will be reopened September 1 next, a course of thirty lectures having already been arranged. The laboratory will have a special daily program during the visit of the Kentucky State Medical Association, which meets in Newport, Ky., in October, and the Mississippi Valley, which is scheduled to meet in Cincinnati during the same month.

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**Western Reserve School of Journalism.**—Practical newspaper men of recognized reputation from Cleveland and Columbus have been selected to complete the faculty of instruction in the School of Journalism, Western Reserve University, which begins its work next September under the direction of the recently appointed dean, Harry F. Harrington, who has been head of the courses in Journalism at the Ohio State University.

President Charles F. Thwing announced the appointments just authorized by the board of trustees of the University. The appointments are: Benjamin Karr, chief editorial writer of the Cleveland Leader; Erie C. Hopwood, managing editor of the Cleveland Plain Dealer; George Smart, editor of the Iron Trade Review, Cleveland, formerly in newspaper work at Cincinnati, Columbus and Washington; Theodore T. Frankenberg, Staff of the Ohio State Journal, and James Harrison Donahey, cartoonist of the Cleveland Plain Dealer. These men will direct a practical newspaper plant. Students who enter the School of Journalism will be given an intensive course of practical and theoretical work which it is believed will turn them out ready for active newspaper service anywhere in the United States.

Benjamin Karr, for many years the chief editorial writer of the Cleveland Leader, is appointed Lecturer in Editorial Writing. His early newspaper work began in 1881, included brief experience on the financial (market) page, at the telegraph desk and in reading exchanges. He has been a contributor to various magazines and other periodicals.

Erie Clark Hopwood, managing editor of the Plain Dealer, is appointed Lecturer in Journalism. He is a graduate of Western Reserve in the Class of 1901. As an undergraduate he filled positions on the Ashtabula (Ohio) Record, Iron Trade Review, Cleveland Recorder and Cleveland World. Following graduation from college, he was principal of the Middletown (Ohio) High School for one year. Since 1902 he has been connected with the Plain Dealer, as day police reporter, reporter, assistant city editor, city editor, night editor and managing editor. He has done considerable writing for other newspapers and magazines.

George Smart is appointed Lecturer in Journalism. He has had a varied newspaper career in point of communities and newspapers served. He has been telegraph editor of the Cincinnati Enquirer, reporter, city editor and Washington correspondent for the Cleveland Plain Dealer, news editor and editorial writer for the Columbus Citizen, managing

editor, and finally editor-in-chief of the Iron Trade Review in Cleveland. While he has specialized in trade journal work in recent years, his success at present is largely attributed to the broad foundation and experience secured under recognized leaders in his earlier years.

Theodore T. Frankenberg is appointed Instructor in Journalism. He comes to the School from the staff of the Ohio State Journal, one of the oldest and best established newspapers in the middle West, where he has been a staff writer for the past ten years. By reason of the variety of his experience, he has filled practically every position in the editorial department. In addition to his work on the State Journal he was five years dramatic critic of the Columbus Citizen, assistant telegraph editor of the Columbus Dispatch during the Spanish-American war, and for a short period managing editor of the Toledo Times.

James H. Donahey is appointed Lecturer in Cartooning and Caricature. His cartoons are among the best known features of the Cleveland Plain Dealer. Mr. Donahey came to Cleveland 18 years ago from West Chester where he had been a printer. Even as a boy he had shown an inclination to draw. Before receiving instruction in art, he became cartoonist on the Cleveland World when he was only 20. The wide popularity of his cartoons in that publication brought an invitation to join the staff of the Plain Dealer, where he has remained despite flattering offers from the East. Mr. Donahey has been cartoonist on the Plain Dealer for the past 15 years. In addition to his work there he has for years been instructor in the Cleveland School of Art, and has drawn extensively for magazines and other publications.

Professor Clayton King Fauver of the School of Law, Western Reserve University is appointed Lecturer in Laws of the Press.

Announcements of the specific course offered by the School will be made shortly.

## CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA

The clinical Congress of Surgeons of North America will hold its fifth annual session in London, England, during the week of July 27, 1914.

**American Officers.**—George Emerson Brewer, President; John B. Murphy, President-Elect; W. W. Chipman, Vice-President; George E. Armstrong, Vice-President-Elect; Allen B. Kanavel, General Treasurer; A. D. Ballou, General Manager; Franklin H. Martin, General Secretary.

**The London Committee.**—Sir Rickman J. Godlee, Honorary Chairman; Herbert J. Paterson, Herbert S. Pendlebury, Honorary Secretaries.

**Department Chairmen.**—W. H. H. Jessop, Surgery of the Eye; Arthur H. Cheatele, Surgery of the Ear; Sir St. Clair Thomson, Surgery of the Nose and Throat.

**Hospital Committee.**—St. Bartholomew's, McAdam Eccles; St. Thomas's, Cuthbert Wallace; Westminster, Walter Spencer; Guy's, C. H. Fagge; St. George's, H. S. Pendlebury; London, J. Sherren; Middlesex, T. H. Kellock; University, R. Johnson; St. Mary's, W. H. Clayton Greene; King's College, F. F. Burghard; Charing Cross, H. S. Clogg; Royal Free, James Berry; Metropolitan, Maynard Heath; Cancer, C. Ryall; Hospital for Sick Children, G. E. Waugh; West London, Tyrrell Gray; National, Percy Sargent; St. Peter's J. Thomson Walker; Prince of Wales', H. W. Carson; Hampstead, J. Jackson Clarke; St. Mark's, P. Lockhart Mummery; New Hospital for Women, Miss Aldrich Blake; Chelsea Hospital for Women, Dr. T. W. Eden; Royal London Ophthalmic, A. C. Hudson; Seaman's, C. C. Choyce; Royal Ear, J. F. O'Malley; Hospital for Diseases of the Throat, G. W. Badgerow; Royal Westminster, W. H. McMullen; Central London Throat and Ear Hospital, Dan McKenzie; Samaritan Free Hospital for Women, Dr. F. J. McCann.

The 1914 Congress will soon be in session. The last of July will find a notable gathering of surgeons and surgical specialists in London



to witness the British surgeons as they exhibit their surgical skill in their own institutions. The wonderful interest that has been engendered in these Congresses in Chicago, Philadelphia, and New York on the part of American surgeons will be greatly heightened when they have the opportunity to stand shoulder to shoulder with their English and Continental confreres and observe the London clinical methods. In a few years this idea of holding a clinical meeting has revolutionized the conduct of medical societies in America, and it now remains to be demonstrated whether or not the same idea will meet with similar approval by the surgeons of England.

During the days of the Congress the clinics by eminent London surgeons will be observed by many visitors from America, Canada, the Continent, and the Provinces. At the evening sessions the scene will be changed, when the celebrated surgeons of the Continent, America, Canada, and the Provinces will reciprocate by furnishing the scientific entertainment to the members of the Congress and to the London surgeons, delivering messages on the live surgical questions of the day.

A review of the Clinical Program, printed on the following pages, gives but a fair idea of the great interest that is being taken in this session of the Congress by the London surgeons. The work of organization is progressing rapidly and by the time the Congress is opened a considerable portion of the clinical facilities of London will be available to the visiting surgeons.

The program for the Evening Sessions, as printed in this issue, gives only a tentative outline of the wealth of interesting material that will be presented by the visiting surgeons and briefly discussed by the London surgeons.

### **London as a Post-Graduate Center**

London is a great post-graduate center in medical instruction and training, and no doubt many of the younger visiting surgeons upon discovering the advantages to be gained by attending the London clinics will take this occasion to make arrangements for more formal and prolonged courses, either in the immediate future or later.

### **Headquarters of The Congress**

The headquarters of the Congress are ideal. The embankment suites of entertainment halls of the capacious Hotels Cecil and Savoy, located side by side in the hospital center of London, have been secured for the registration rooms, exhibition halls, and evening meeting rooms. These great hostelries, with their combined capacity for more than fifteen hundred guests, are located within a stone's throw of many of the other famous hotels of London.

Surgeons on reaching London should proceed at once to the headquarters, register, and receive their membership cards and tickets which will admit them to the evening meetings and to the clinics.

Those who prefer to do so may register in advance and receive their credentials by sending the amount of the fee to the General Secretary, Clinical Congress of Surgeons, 30 North Michigan Avenue, Chicago, before July 1st; after which time remittance should be sent to the London office of the Congress, No. 1 Wimpole St., London, W. England.

### **Bulletin Rooms**

At the Hotel Cecil will be bulletined the clinics in General Surgery, Gynecology and Obstetrics, Genito-Urinary Surgery, Orthopedics, X-ray and Laboratory Demonstrations; at the Savoy, the clinics and demonstrations in Surgery of the Eye, Ear, Nose and Throat. The program for Monday, July 27th, will be bulletined on Saturday afternoon, July 25th, two days before the opening of the Congress, and on the afternoon of each day of the session a complete, accurate program of the clinics and demonstrations to be given on the succeeding day will be posted on

the bulletin board. The registration and bulletin rooms will also be open on Sunday, July 26th, for the accommodation of early arrivals.

### Membership in The Congress

Any physician or surgeon legally qualified to practice surgery in his community may become a member of the Clinical Congress by registering at any annual meeting and paying the registration fee.

Automatically the subscribers to Surgery, Gynecology and Obstetrics, the official journal of the Congress, will receive invitations without request. Other members of the profession who desire to attend will receive formal invitations upon request to Franklin H. Martin, M. D., General Secretary, 30 North Michigan Avenue, Chicago, or to No. 1 Wimpole St., London, W.

### Program of Evening Sessions—General Surgical Division

Presidential Meeting, Monday, July 27th, in the Grand Hall, Hotel Cecil. Formal Opening. Address of Welcome, by Sir Rickman J. Godlee, Honorary Chairman of the London Committee. Welcome to American Surgeons, by the Honorable Walter Hines Page, American Ambassador. George Emerson Brewer, M. D. New York City: Address of retiring president. Inauguration of President John B. Murphy and Vice-President George E. Armstrong. Professor A. Von Eiselsberg, Vienna: The Choice of the Operative Method for Ulcer of the Stomach. Discussion by Sir Watson Cheyne and James Sherren.

John B. Murphy, M. D., Chicago, Presidential Address: Arthrodesis and Bone Transplantation; Its Limitations and Technique.

Tuesday, July 28th, in the Grand Hall, Hotel Cecil. Henry Jellett, F. R. C. P., Dublin: The Use of the Levator-Ani Muscle and the Utero-Sacral Ligament in Prolapse Treatment. Discussion by Dr. Herbert Spencer, London. E. Wyllys Andrews, M. D., Chicago: Cure of Hernia by Tissue Inlaying or Fascial Implantation. Discussion by Lawrie Hugh McGavin, F. R. C. S. Robert Jones, F. R. C. S., Liverpool: Certain Derangements of the Knee Joint and Their Treatment. Discussion by Mr. A. H. Tubby and Mr. Robert Milne.

Wednesday, July 29th, in the Grand Hall, Hotel Cecil. George E. Armstrong, M. D., Montreal: Typhoid Perforation. Discussion by Sir Anthony Bowlby, F. R. C. S., London. Charles H. Mayo, M. D., Rochester: Primary and Late Results of Operations for Exophthalmic Goiter or Hyperthyroidism. Discussion by James Berry, F. R. C. S.

Thursday, July 30th, in the Grand Hall, Hotel Cecil. Professor Doctor Kronig, Freiburg, Germany: The Principles of Non-Operative Treatment of Carcinoma. James F. Percy, M. D., Galesburg, Illinois: The Treatment of Inoperable Carcinoma of the Uterus by the Application of Heat. Thomas Wilson, F. R. C. S., Birmingham: Radical Operative Treatment of Cancer of the Uterus. Discussion by Thomas Watts Eden, F. R. C. S., W. E. Miles, F. R. C. S., London; and Dr. Joseph Colt Bloodgood, Baltimore.

Friday, July 31st, in the Grand Hall, Hotel Cecil. Professor Tuffier, Paris: Transplantation of Ovaries. Discussion by Sir John Bland-Sutton. Sir William Osler, Bart., Oxford: Intestinal Stasis. Discussion by Sir Arbuthnot Lane, Bart. Sir Berkeley Moynihan, Leeds: Intestinal Stasis. Joseph Colt Bloodgood, M. D., Baltimore: Surgery of Intestinal Stasis.

### Division of Surgical Specialities

Tuesday, July 28, in the Ballroom of the Hotel Savoy. Professor E. Schmiegelow, Copenhagen, Denmark: The Results of Operations (Laryngofissure) for Intrinsic Cancer of the Larynx. Discussion by Sir St. Clair Thomson, London. Dr. J. M. West, Berlin, Germany: The Intranasal Surgery of the Lachrymal Apparatus, after an Experience with over 225 Operations. Discussion by Dr. D. R. Paterson of Cardiff.



Wednesday, July 29th, in the Ballroom of the Hotel Savoy. Dr. A. Logan Turner, Edinburgh: The Application of Skiagraphy to the Mastoid Region and Its Use in the Detection of Disease. Discussion by Mr. Sidney Scott, London. Mr. Hugh E. Jones, Liverpool, England: Some Considerations which Determine the Extent of an Operation in Septic Invasion of the Lateral Sinus. Discussion by Mr. Hunter Tod, London.

Thursday, July 30, in the Ballroom of Hotel Savoy. Symposium on Surgery of the Cleft Palate. (Papers to be limited to fifteen minutes each.) Robert W. Murray, F. R. C. S., Liverpool. W. W. Goyder, M. D., F. R. C. S. Bradford. Johan Ulrich, Copenhagen, Denmark. Truman W. Brophy, M. D., Chicago. George V. I. Brown, M. D., Milwaukee, Wisconsin. Joseph R. Eastman, M. D., Indianapolis, Indiana. Dr. Ernst Kaerger, Berlin. Discussions limited to ten minutes each, by Sir William Arbuthnot Lane, London; Edmund Owen, M. B., F. R. C. S., London; James Berry, M. B., F. R. C. S., London; Professor Keith, London; T. Percy Legg, M. S., F. R. C. S., London; and Dr. Edward S. Judd, Rochester, Minnesota.

Friday, July 31st, in the Ballroom of the Hotel Savoy. R. H. Elliott, Lt. Col., I. M. S., Madras, India: The Sclero-Corneal Trephining Operation for Glaucoma. Discussed by Mr. Treacher Collins. Mr. F. Richardson Cross, Bristol: Operative Procedure for Strabismus. Discussion by Mr. N. Bishop Harman, London. Dr. John B. Story, Dublin: The Operation for Senile Cataract. Discussion by Mr. Holmes Spicer.

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### Deaths

**Joseph Franklin Hobson, M.D.**—Western Reserve University, Cleveland, Ohio, 1886; a Fellow of the American Medical Association; professor of anatomy in his Alma Mater from 1887 to 1892; and professor of clinical surgery in the Cleveland College of Physicians and Surgeons from 1892 to 1906; one of the founders, chief of staff and visiting surgeon to Cleveland General Hospital, and visiting surgeon to St. John's and the City Hospital; local surgeon of the Pennsylvania and Lake Shore and Michigan Southern railroads, and consulting surgeon of the Brotherhood of Railroad Trainmen; died at his home in Cleveland, May 24, aged 52.

**Milton Isaac Brosius**—Cincinnati Medical College, Tiffin, Ohio, 1823; died at his home June 9, aged 91.

**William C. Bunce**—Western Reserve Medical School, Oberlin, Ohio, 1857, died at his home June 11 of heart disease, aged 57.

**William Crawford Henry**—Miami Medical College, Aurora, Ohio, 1841, died June 1, aged 73.

**Thomas Smith Hunter**—Jefferson Medical College, Ashland, Ohio, 1839; Civil War veteran; died at home of his daughter June 7 of heart failure; aged 74.

**Dan Millikin**—Miami Medical College, Hamilton, Ohio, 1845; Civil War veteran; former trustee of Miami University, President of Board of Education, 1906 to 1913; died June 5 of pernicious anaemia, aged 70.

**United States Civil Service Examination**—Assistant Epidemiologist, Male (\$2,000-\$2,500), July 6, 1914.—The United States Civil Service Commission announces an open competitive examination for assistant epidemiologist, for men only. From the register of eligibles resulting from this examination certification will be made to fill vacancies in this position in the Public Health Service, at salaries ranging from \$2,000 to \$2,500 a year and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will be to conduct laboratory studies of disease, to make epidemiological surveys to determine the prevalence and causation of epidemics, and to recommend measures to prevent and control outbreaks of disease.

It is desired to secure persons thoroughly competent in the various branches of sanitary bacteriology, and especially in isolating the typhoid bacillus from infected persons and materials.

Competitors will not be assembled for examination, but will be rated on the following subjects, which will have the relative weights indicated:

Subjects	Weights
1. General education and medical training.....	25
2. Laboratory experience .....	30
3. Experience in epidemiological work.....	35
4. Publications or thesis .....	10
Total.....	100

An educational training equivalent to that required for graduation from a medical school or college of recognized standing, and at least three years' experience in epidemiological work under Federal, State, or local authorities, and experience in laboratory technic, especially in regard to typhoid fever, are prerequisites for consideration for this position.

If a thesis is submitted under subject 4, it must present the results of original research work in some sanitary subject.

Statements as to education and experience are accepted subject to verification.

Applicants must have reached their twenty-third but not their fortieth birthday on the date of the examination.

This examination is open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for Form 304, and special form, stating the title of the examination for which the forms are desired, to the United States Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Post Office, Boston, Mass., Philadelphia, Pa., Atlanta, Ga., Cincinnati, O., Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Cal.; Customhouse, New York, N. Y., New Orleans, La., Honolulu, Hawaii; Old Customhouse, St. Louis, Mo.; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed, excluding the medical certificate, and filed with the Commission at Washington, with the material required, prior to the hour of closing business on July 6, 1914. The exact title of the examination as given at the head of this announcement should be stated in the application form.

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## OCCUPATIONAL NEUROSES — PATHOGENESIS AND EXAMPLES OF TREATMENT\*

By TOM A. WILLIAMS, M. B., C. M. (Edin.), Washington, D. C., Corresponding Member Societies of Psychology and Neurology, Paris, Etc., Neurologist to Epiphany Dispensary.

Occupation neuroses are, in the truest sense, psychological disorders and they should be called psychoses.† Their study is therefore a branch of psychopathology. Ætiology and treatment of the cases I shall relate clearly show the insignificance of the principal factors to which have formerly been attributed nervous inadequacies resulting from occupations qua such. Had not logic and reflection been in abeyance concerning functional nervous disorders, the unsatisfactoriness of previous explanations would not have been tolerated, so naive were they. For instance, how could a “fatigue” neurosis fail to improve by resting? When a person is so fatigued as to be unable to write a line with a pen, he cannot write for days with pencil without fatigue. Moreover, the hypothesis of fatigue cannot account for the normal performance of prolonged and exacting operations by the identical muscles and nerve centers which fail at once in the “professional” act.

Again, it is absurd to suppose that an ataxia of physical origin can permit of perfectly smooth movement save where the occupational act is concerned.

It is no gain to classify occupational functional nervous disorders under the rubric of muscle or nerve topography or cerebral center, even when this is conceived purely functionally—such a procedure would only mislead, for the mechanism is more profound than the notion of functional centers.

The hypothetical toxins by which it is the fashion nowadays to explain many functional disorders cannot be invoked in this

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\*Communication to the International Congress of Medicine in London, August, 1913, Section and Neuropathology.

†See Author's Study of Genesis of Writer's Cramp; *J. für Neurol. u. Psychol.*, 1912, Bd. 19, also Int. Cong. Hygiene, 1912.

instance—for the effects of poison on muscle and nerve show themselves whenever their functions are exercised, not merely in “professional” work.

However, while toxins or fatigue do not directly participate in the genesis of occupational psychoses, they sometimes have a considerable disposing influence by lowering the physiological efficiency of the nervous system, and thereby the *tension psychologique*.

The physical state of fatigue or toxicosis adds to the strain of work, of course. It is not the strain itself, however, which causes a psychosis, but the mental prepossession consequent thereupon which produces an affect—anxiety—which prevents the reciprocal inceptions of the cerebral processes which eventuate in the desired act. This will clearly appear in the cases which follow.

It is, of course, in motorial disorders that are most manifest the insufficiencies which make up occupational neurosis; for movements are readily observed, and the cause of the onset there is, perhaps, less liable to fallacy than where the mental process is merely interiorized as thought, or where it is translated into what we call emotion.

Analysis of cases of this kind has shown me how frequently the real cause of disability may not be strictly occupational at all, but is more generally a maladjustment connected with personal life. The most striking case I know is that already given in my study of the genesis of writer’s cramp.\* Hence its reputation here will not be out of place.

#### Case I—Torticollis Causing Grapho-Spasm

Single woman, E. L., aged thirty-one, expert counter in the U. S. A. Treasury.

*Complaint.* Cannot use right arm; for each motion causes the head to turn to the right; “and I am compelled to look right backwards with a most powerful force, over which I have no control.” It began three months before with a pain behind the right shoulder, running round to the right side. She now has pain all the time. She consulted a physician, who called it neuritis and advised massage. The nurse who was called feared to massage her; so electricity (sic) was tried, and did good at first to both the pain and the movements.

She had fallen on this shoulder in August, but it did not trouble her after the first few days.

The movements and pain had been bearable until a month

\**Jour. für Neurol. u. Psychol.*, Leipsic, 1912, Bd. 19.



before she saw me; and she had left her work from time to time, on one occasion for three weeks.

*Present State.* Appetite good, no indigestion or pain; and the general physical examination showed nothing abnormal except loss of weight, hypotonia and exaggerated reflexes.

*Psychic Examination.* No marked defect of memory, attention, judgment in general matters, no emotional reactions; but she is much worried about her condition, which she believes to be a physical malady. As will appear from the psychoanalysis, there are other worries which she did not at first reveal.

*Onset.* She had no unusual worry at the time, she declares; but on account of straightened finances and the delicacy of her mother, she has been anxious for some years. As a result of psychoanalysis, it was ascertained that three months before the tic there had occurred a serious unpleasantness with a comrade in the office, whom she stigmatized as an ignorant, conscienceless woman. The emotional bitterness displayed in the patient's account was an immediate index of the serious pathological significance of this episode. Her attempts at harmony caused no satisfaction; so she declares that she ceased worrying. "I had tried to adjust it, but failed; for she is a married woman older than I am and above me in the office. She is angered because I do not associate with her. But as she had spoken disparagingly of my mother, I taxed her, only to meet with denial."

She brooded deeply over this episode, and as her work in counting can be performed quite automatically, her thoughts were free all day long to dwell upon the constant unpleasantness of being in the same room as the other woman, who *sits behind her on the right*.

Some three years before she had renounced marriage for the sake of her mother, on account of a love affair which had turned out unfortunately. Her mother too had had an unfortunate marital experience, the knowledge of which has tended to strongly depress the patient's mind. But in spite of all this, she declares that her home is happy with her mother and sister, for whom she has a strong affection and admiration, and terms "a practical Christian." She has always been most anxious to do her duty and to "make good" at her work; but she confesses that since the quarrel with her fellow-worker her thoughts have been preoccupied by the unpleasantness it has caused, concerning which, however, she believes herself to have the sympathy of many of the other girls. But at work she cannot help thinking of the other woman.

*Examination of the Origin of the Tic.* It is evident that the girl's thoughts about her enemy cause her head unconsciously to veer and turn towards where she knows her to be. This is the less easy to resist because her attention is partly occupied by the counting of the money, which is her duty. As she is anxious to

do this as rapidly and well as possible, mistakes or insufficient work not being condoned, she is less able to resist the motor response to her underlying thought, which is essentially a desire for an understanding with the other woman and a reconstruction of her own desire to be in harmony with her surroundings.

But now, however, by a process of psychological substitution, the need of turning the head has come to accompany every *use* of the right hand; so that she is unable to use her knife at the table without a turning of the head and an ensuing rigidity of the arm and head in the effort to arrest the torticollis and to accomplish the act she wishes. In writing, it is the same thing.

The case affords an example of writer's cramp mechanically produced by torticollis of mental origin, which by a psychological association has in turn become producible by any *use* of the hand or arm.

The cause of pain was the action of the muscles antagonistic to the turning movement, which she consciously seeks to prevent. Between the automatic desire to turn the head and the conscious effort not to do so, the muscles of the shoulder, neck and upper part of the chest are maintained more or less constantly in a state of powerful contraction; and the severe drag upon their attachments, combined with a state of fatigue, provokes the pain of which the patient complains. It is similar to the pain caused by the carrying of a heavy bag for a long while.

Even at rest, the patient now holds the head somewhat to the right, and keeps contracted the neck and shoulder muscles on that side. The attempt to turn the head straight or to the left is not accompanied by *angoisse* strictly speaking, but causes a distress referable to the muscles of the right side and to consciousness of her incapacity to freely perform the desired movement. She feels an actuating force stronger than herself. It is from such feelings in the credulous and superstitious that may arise the notion of possession by an external being a *daemon*. If the woman's tic is not cured, I have no doubt that in course of time anguish will accompany efforts to suppress the movements; but at present the syndrome is not complete.

There are somatic factors in the case; for the tic is always much worse during the catamenia, when she has much pain, nausea and sinking feelings of the heart with flushes, chills and headache, and often has to take to bed. These symptoms are said to be due to uterine malposition.

She has also a marked exophoria, and had to abandon on account of dizziness her original work of spreading bills.

But the psychological factor is the main one, as will appear; for the torticollis is proportional to the insistence of the thought of her painful relationship with her fellow worker; and when she succeeds in dismissing this from her mind, the tic rarely occurs. This, however, has been difficult, because she had no confidence, not being willing to trouble her tired sister, as had



been her habit, and the clergyman to whom she was attached having left Washington. Hence, there was no relief from brooding over her grievance.

*Treatment and Progress.* I explained the genesis of her affection and gave a good prognosis. My first prescription was to take ten days of cheerfulness in the country and try to be less hyper-conscientious during that time, paying no attention to her troubles or to the torticollis. Six days later she returned, not having followed instructions, with pain in the head and the tic worse than ever. I gave her exercises in psychomotor discipline, consisting of dealing a pack of cards into two heaps while her head was turned away from the affected side, and cutting along lines on a piece of paper. In a few days she greatly improved in performing these tasks, and tic greatly diminished and the pain in the shoulder disappeared.

But the fact that this improvement became less rapid, as was to be expected, so discouraged her that she relaxed her efforts during the exercises, and substituted therefor a constant tension of the muscles in an attempt to rectify the abnormal posture of her head and neck. This created pain at the angle of the scapula where the latissimus dorsi is attached, and she lost courage. She was advised to go out and relax, and to abstain from work for at least another month. This she declared herself unable to do, and persisted in returning to work against advice. In consequence the torticollis was greatly aggravated, and she gave up attending.

I have learned recently that she had to remain away from work for two months, during which she took "chiropractic" treatment, which improved her torticollis, but not the professional cramp; and she does her work entirely with the left hand, and her bitter mental attitude is worse than before.

Here it should be apparent that the important factor, genetically speaking, was not the occupation itself, but the social situation contingent upon it with reference to her fellow employee. No amount of rest from her work would have led to a cure; and the symptoms would have disappeared at once had she been able to put an end to the painful personal relationship.

But, furthermore, had the mental groundwork of this patient been different, it was unlikely that the incident would have occurred at all. That mental groundwork was made up by the unfortunate life of the patient's mother, which had led the daughter to take an attitude on the part of her family which made harmonious intercourse with other people quite difficult. In the proverb of the street, she went through life with a chip on her shoulder.

Another case illustrating the import of psychologic make-up in bringing on occupational neurosis is as follows:

**Case II—Hysterical Tremor During Occupation**

A clerk in the Pension office, aged 45, consulted me for a severe tremor of the body which interfered with her work. She was otherwise well. Her sensibility was normal, her reflexes feeble, and the cerebellar functions were normal. The oscillations were about 6 per second, their excursion slight, and they affected only the body, head and arms, but not the hands. The tremor did not interfere with writing. It could sometimes be controlled by intently keeping quiet, but only when she supported herself.

Tests showed me that the movements ceased when her attention was distracted by reading aloud, or even when I made her fully extend the arms and look into the distance. This, in the absence of neurological signs, was presumptive of a psychogenetic mechanism, the fact that the tremor was most marked when attended to during the tests was confirmation; and the history that she was a self-conscious child, hating to feel conspicuous, fearing the dark, having been frightened by the stories of an Irish nurse, and trembled then occasionally was also significant.

Later, a feeling of tension when hurried was constant; this she overcame through the offices during a year of a masseuse, who showed her how to relax the tense muscles.

A year ago, a close friend died of progressive paralysis. This caused her to fear the same disease, and much worried her.

This patient was seen only twice, and the exact mechanism of her childhood's trembling was not traced, that is to say the incidents upon which it depended were not ascertained. But the childish fears which governed it are so common, that it was hardly necessary; as I am not one of those who believe that the mere tracing of such a mechanism is sufficient *in itself* to remove the effects that a long habit has stamped upon the personality. A generic explanation may suffice from which to start re-educative discipline on a rational basis.

The important factor of this case at the time was a fear of paralysis. It was this self-conscious apprehension of trembling and the import of this towards her occupation which caused her to shake. Its psychogenetic nature needs no argument, its disappearance by distraction being demonstrative. The cure of her former disturbance by massage is merely an indication of response to suggestion; and the fugitive nature of those in childhood is confirmative. This patient was rid of her tremor to a great extent, and made quite comfortable at work by the simple explanation of its psychogenetic nature, and its dependence upon her own mental attitude.

**Case III—Writer's Palsy of Tremulous Type**

Another case beautifully showing how the mere idea bred of fear of disability was the efficient cause of occupational psy-



chosis was that of a naval paymaster whose scrivener's palsy was removed as the result of one interview, during which the mechanism was clearly ascertained and explained, and measures to overcome the effects were planned. The case is published in full in the before-mentioned study.\* The man was unable to sign the checks which were part of his duty. The disability was traced to the refusal by the bank of the check which he had signed when tremulous from work before full recovery of his strength after an operation. This so preyed on his conscientious mind that every signature was made under great apprehension. When he was made to understand the nature of his difficulty, we planned a series of exercises which led to his recovery in a month.

*Treatment.* The role of mental prepossession in inhibiting the due co-ordination of muscular movements was explained to him, and illustrated by means of the strokes in lawn tennis, more especially that known as the drive. It was shown that fear of making an improper stroke is very likely to lead to lack of freedom and cramping of the muscles, which are the very positions to be avoided. Still greater anxiety will create an uncertain, wobbling stroke, the inco-ordination of which is comparable to his writing.

A further illustration used was that Jastrow's† investigation of the relative efficiency of the employees who first used the enumerating machine in the census of 1900, as against those who were brought in later on account of the disappointing output of the others. The special preparation of the first set of clerks, so far from giving greater speed, only produced the feeling of the difficulty of the task, which they never transcended, being quickly surpassed in amount of work by the clerks who received no special preparation whatever.

The relation of these facts to the episode of the refused check was discussed with him at length. When he had clearly realized the psychological mechanism of his condition, he was directed to entirely cease writing with purpose, and to begin exercises by making free-arm movements with chalk on a blackboard, paying no attention to the forms he drew, but concentrating himself upon the attainment of freedom in action. When this was insured, he might pass to a slate, and later to pencil and paper, and gradually reduce the size of the writing. He was asked to send me specimens of his efforts; but this he did not do; and he did not reply to an inquiry addressed to him one month later. But over two years later, he sent me a specimen and informed me that he had almost entirely recovered after one month of the exercises prescribed.

It should be added that this patient's disability was entirely

\**Jour. für Neurol. u. Psychol.* loc. cit., Leipsic, 1911, Bd. 19.

†Fact and Fable in Psychology (Macmillan).

confined to writing; for even in drawing and letter printing there was hardly a tremor of the hand.

Here again, it was not the work itself which was the cause of psychosis; it was the patient's attitude towards it, derived from his mental habitus; and this, of course, was largely environmental from influences of his youth as indicated in the original report of the case (*loc. cit.*).

### Shock and Occupational Psychoses

Sinistrosis may be regarded as a form of occupational psychosis. Here the patient persists that he is not fit for work, but does so usually in the belief that it is not the work itself, but rather an accident that has incapacitated him. That the accident itself, or even the shock that it may bring is far from being efficient as a cause of traumatic neurosis, I have shown repeatedly. (With regard to this, consult "The Psychic Effect of Accidents," *Monthly Cyclopaedia*, 1912; "Notion and Emotion in Traumatic Neurosis," *Journal of Abnormal Psychology*, 1910; "Traumatic Neurosis and Babinski's Conception of Hysteria," *International Congress on Industrial Diseases*, Rome; *Medical Record*, 1909.)

In passing, it must be said that not only are the effects of the shock strictly psychogenetic, but that these effects *rapidly disappear* unless the shock-effect is maintained by a process which is strictly ideational. This all amounts to a repetition of the shock by its reviviscence in memory.

Especially prone to this damaging sequence are persons whose imagination has been made rampant by the cultivation of the credulous fears of childhood: their fear-reaction to that which they do not understand is a dominant one, and they are easily beset by an idea linked with fear. The commonest of the fears which result from accident or injury is that of bodily harm. It is very hard for a person of this type, when ignorant of his own structure and functions, to shake off the foreboding created by an impressive catastrophe; and it must not be forgotten that what others regard as trifling, the victim may look upon as catastrophic, judged by its possible effect on him. Prepossession by the idea of one's own disability is an inevitable consequence. This leads to abstraction from and inattention to the affairs of ordinary life, which if not trifling by comparison in the patient's mind at least, cannot claim the attention properly needed. Hence ensues the well-known diminution of the capacity to think, work or take part



in social life. This incapacity, when the patient becomes aware of it, leads him to still further accentuate the result of his injury, and thus to augment his alarm about his health. Thus is constituted the vicious circle of hypochondria. Even a nosophobia may ensue, such as the fear of lost manhood, insanity, paralysis. Alarm at this impending disaster must, of course, be distinguished from the primary alarm due to the accident itself.

The next step in the drama is the reaction against the actual absence of physical signs of injury and the reassurances of medical men. This takes the form of an unconscious search by the patient in ratification of his belief that he is indeed damaged. Hence arises the familiar exaggerations and falsifications of symptoms. These are made in perfect good faith and honest belief, but they lead to the simulation of disease-pictures previously in mind or acquired in the course of the disorder. It is only after the patient begins to be convinced in his heart that he is mistaken, that there ensues the deliberate self-deception of the desperate effort to preserve the respect of himself and his friends which he feels he would lose by admitting the absence of physical disorder after all.

#### A Further Mechanism

Analysis of sinisters, however, may reveal that the mechanism is sometimes really a fear of the work itself.

#### Case IV—Loss of "Nerve" After An Accident

Thus a railroad freight-conductor was sent to me for care from North Carolina by the Southern Railway Company. He had fallen off a truck, and had been much shaken and bruised. Unlike most persons in such cases, he did not complain of pain or paralysis, but merely stated, what was the truth, that he "could not sleep, and remained in a state of nervous agitation which would even cause him to cry at times, and made life unbearable, from incapacity, weakness and mental depression, so that he felt utterly unable to return to work, feeling that he could not perform it." In his happy domesticity there were no extrinsic psychologic factors except the mental habitus of hyper-conscientiousness of ambitious type. There was an entire absence of the roughness often seen in men of that occupation. In its essence, the situation was that the man felt unable to, and did not want to, lead again the arduous life of a railroad man, for which he was in reality temperamentally unsuited.

The *trauma was merely an occasion* for the manifestation of a true occupational psychosis. My failure to persuade this man

to resume his former work, was that of an attempt to place a round peg in a square hole. The man's condition was a true defense act against an unnatural life.

### Another Type of Case

The true occupational psychosis must, of course, be distinguished from cases of real fatigue exhibiting secondary psychological symptoms, and from cases of incapacity from psychological symptoms arising from physical irritations. Two cases are appended to show the distinction.

#### Case V.—Incapacity Due to a Peripheral Irritation

A married man in the Government Forest Service had for some years done much office work entailing the responsible control of other men. He was brought to me because he had suddenly begun to vacillate concerning administrative decisions. From his wife and children finding it necessary to remain in the West while he was in Washington, he denied any disturbance. But the fact remained that he contemplated going to them on a long vacation, as his work was more than he could stand. For a few days he had developed a severe neuralgia paroxysmal in nature, but not due to faulty teeth, according to a dentist. Examination was negative and I attributed his condition to the metabolic disturbance caused by prolonged stress, worry and unhabitual sedentariness. I advised a trial of low nitrogen diet, active exercise and freedom from work for a few days.

However, the pain became so acute that the patient insisted upon extraction of the most painful tooth. Forthwith all his unpleasant symptoms disappeared. The patient declared that he felt as if a huge incubus had suddenly been removed. He immediately returned to work without further trouble.

This was clearly a case of a peripheral nagging preventing the harmonious integration of the nervous system needed for psychological adaptation. It had etiologically nothing to do with occupation as such.

#### Case VI—Overwork

A medical student of the age of 24 was suffering from pains in the back and neck and dullness in the whole of the head. He complained of a general tired feeling in the morning, and felt exhausted, and with no energy all day. He found intellectual work hard then, but never before, and had worked with a will for years without difficulty. The first two years he found etymology difficult, but many men find it so, and he had no difficulty to concentrate as he had now. His interest went and he studied at home in the endeavor to make up work; the work was not difficult, but he did not pass well.



Then eye trouble began in the summer, and glasses improved him, the tired feeling coming on now and then.

He was not strong, he had had measles and chicken-pox, tonsillitis the last two years at Christmas, and colds every winter.

He felt pressure and weight in neck, a tired feeling in head and his eyes streamed. He did not suffer from constipation, and his appetite was good. He smoked two cigars a day, and some pipes, took much refreshment and coffee, but no alcohol. He dined at 6:30, took fruit at night sometimes, no lobster meals, and much water.

*Recreation.* He walked not over two miles, studied until 11 p. m. and rose at 7 a. m. Went to theaters once weekly, called on girl's mother, and danced two or three times this season, but it made no difference to him.

Thus there was a complete absence of any morbid affective reactions. Suggestibility was not exaggerated, but there was slowness and difficulty of thought.

I interpreted this as a case of simple prolonged strain, to be benefited by rest, and advised that work should be given up for the rest of that session, and summer passed as easily as possible. This was done and in the following year his work was performed without any more difficulty than was inevitable in a slow thinker.

The most dramatic forms of occupational psychosis are fugue and the suicide.

### **Ambulatory Automatism and Suicide as Effects of Occupational Psychosis**

Fugue is very often merely an automatic attempt to escape from the exigencies of one's work. Suicide is only an extreme form of this. I append two cases, the first written in part by the patient, who was a medical man.

#### **Own Confession of a Patient**

"The last I remember of Knoxville, is sometime in June, on a Sunday as I recollect, I made an examination of brain substance for Nogri bodies. After this, the first I knew, I was in Roanoke, Va., working in a pharmacy. How I came to get there I can't think; but the fact that I was employed here and fulfilled the duties required seemed to me strange, as I had done no pharmaceutical work in three years. The man for whom I worked was addicted to alcohol and was almost constantly under the influence of whiskey; in consequence, I was confined in the pharmacy from 6:30 A. M. until 10:45 P. M. without leisure. I met an old acquaintance in September. At first I did not recognize him; but after some conversation I began to realize some things. The name I assumed was James Glass; but I had no definite reason for using this one any more than another.

"My health at this time (Sept. 12) was poor. My weight

was only 99 pounds, and I was suffering from headaches which were persistent and which I still have. At this time the opportunity to get an out-of-door position presented itself, of which I availed myself. For three months I worked as commissary clerk on railroad construction camps, and was much benefited as to general health and weight, excepting headaches.

"Before I left Roanoke, I met a young lady whom I married in December. I have felt fairly well since, except for the same headaches, which are in the left temporal region. (In this same region, when only about ten years old I received a blow from a baseball bat in a scuffle with a classmate at school.) In January my father came up to Roanoke, where he located me, and, of course, did not approve of my being married. This worried me for a short time. But since all of his objections were overcome. This is as much as I can state without further definite questions."

Some searching questions showed that this man had been very ambitious in his profession; but on account of his undisciplined nature had not always performed punctually the routine duties of a city laboratory, to which he was bacteriologist. He had devoted an undue time to a research in which he thought he had discovered a new organism. His chiefs did not think his controls adequate, and he took this much to heart, so that considerable friction developed. This his temperament did not enable him to withstand; nor was he capable of facing the situation boldly, because of what his parents might have said. The fugue with amnesia proved the readiest means of escape from a situation too difficult to solve. It was actually an occupational psychosis dependent upon his faulty mental makeup.

#### **Four Attempts at Suicide to Escape From Work.**

A farmer's son, of 22, after some weeks of moody behavior, threw himself into a creek. He was quickly rescued by his brother, who reproached him severely. This did not deter him; for a few weeks later he swallowed laudanum. This led to his removal to a sanatorium, where, after a few weeks, he crushed and swallowed an electric light globe. Later, he gained access to a medicine cupboard, and again swallowed laudanum. So his friends in despair brought him to a doctor friend in Washington, who immediately asked me to see him.

Examination showed no physical disorder, but I discovered that there existed a serious psychological situation, which no one had even suspected—much less attempted to penetrate.

The boy was so ashamed of himself, although still determined to commit suicide, that it was hard to reveal the facts from the analysis of which was furnished the very simple explanation of his distressing predicament.



To state the position briefly, upon this boy has devolved, since the death of his father, the management of his brother's farm. But a younger brother has succeeded in interfering a good deal with our patient's plans, much to his mortification; and when also neighbors' meddling was acquiesced in by his mother, the situation became intolerable, as he had already failed in an attempt to work happily in another environment, which he tried for over a year. So that suicide seemed the only escape.

The failure of this boy to stand up for himself was due to his own shame at the onanism he had practised and his fear that it was injuring his mentality; so that he was not able to stand up against other boys, by whom he was much teased, in consequence of which he withdrew from social life, especially where girls were concerned, and became taciturn and irritable.

He had to confess that if he could be well of what he thought incurable, viz: "a hopeless mental inferiority which masturbation must have caused," he would be willing to live, and would like to work.

He was assured and examples were given him to show that he was quite mistaken about the effects of onanising; and he was asked to think over until the next day the explanation I gave him, meanwhile promising not to commit suicide until he had seen me again.

The next day discussion was resumed, until, in less than a week, the boy could be trusted alone, not only in the hospital grounds, but in town. He went home in ten days perfectly cured, and has been at work and in good spirits ever since.\*

The treatment was conducted in a general hospital, and the maximum of freedom was allowed the patient from the first, the greatest tact being urged upon those who nursed him.

The "neurosis" which led this boy to desire suicide would have occurred whatever had been his occupation, but it pertained to a need of adjustment at work nevertheless. However, just as in the cases which precede, the actuating cause of disturbance was not the work itself, but the mental makeup of the patient, and this was due to causes purely psychogenetic, readily traceable by proper analysis, and removable by appropriate psychotherapy.

1705 N St.

\*The patient relapsed while I was in Europe and was sent to a Baltimore hospital, where he remained two months without benefit and I am told remains sick.

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**Leukemia after an Antitetanus Serum Injection.**—E. J. Brown, Decatur, Ill. (*Journal A. M. A.*, May 9, 1914), reports a case of acute lymphatic leukemia occurring in a boy who four weeks before had been given a prophylactic dose of antitetanic serum. Two years previously he had taken a similar dose for a nail puncture of the foot. A necropsy was not obtained. The case is reported with the idea that it might throw some light on the problems of anaphylaxis without claiming that the acute leukemia followed the anaphylaxis in a sensitized subject or that it was necessarily produced by the second dose of antitetanus serum.

**THE ANCESTRY OF HOMO SAPIENS\***

By T. WINGATE TODD, F.R.C.S., The Anatomical Laboratory,  
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Towards the end of the Glacial or Pleistocene period Neanderthal man disappeared quite suddenly and left no certain traces of his physical build in recent men. All other types already discussed became extinct yet earlier, and we are left to trace our own ancestry in still other ancient skeletons which have been unearthed. There are many who say that modern man has evolved from *Homo neanderthalensis*, but on the whole, evidence is against such a view. Professor Schwalbe believes that Neanderthal man is so separate and distinct that he is even more closely related to the higher apes than to Recent Man. Hence the title *Homo primigenius* has been conferred upon him in his isolation from ourselves who, in our self-esteem as standing at the zenith of the animal world, if any zenith there can be said to be, have dubbed ourselves *Homo sapiens*. Such a title seems to indicate that something, perhaps higher in the scale than wisdom, is absent from our composition. But title has been chosen, and being chosen and all feelings of self-sufficiency thereby engendered being for the moment set aside, let us investigate these ancient bones and try, if possible, to find out when and where arose this type of man so ably represented by ourselves.

Back through the late and early Iron, the Bronze and Copper Ages; earlier yet throughout the Neolithic period, and further back still into the Early Stone Age, we can trace our type with but little change in physical feature.

In the later part of the Glacial period, which lasted anything from half to one and a half million years, there lived some sixty miles north of Vienna a man whose cranium and mandible were disturbed by the unromantic excavations for a city sewer. The Brunn man, as he is called from the modern town which has sprung up around his ancient home, is but slightly different from his modern counterpart. His cranial capacity was about 1400 c.c., but many men of the present day can boast of no bigger a brain. The cranial roof is high and arched as is our own. The temporal ridges and mastoids are modern in type. The supra-orbital ridges and superior curved lines of the occiput are well

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\*Containing the Substance of the Museum Demonstrations on Human Palaeontology Delivered on March 10th and 12th, 1914.

The first, second, third and fourth articles of this series appeared in *The Cleveland Medical Journal* for March, April, May and June, 1914.



developed. He may be said to have been powerfully made, with a bull neck, but his neck was not thicker than that of many men whom we meet every day. The face was long as is the face today, and the chin prominent; the ramus of the mandible is very similar to ours in its length and in its surface area for the attachment of the muscles of mastication. According to Professor Makowsky, the last lower molar was larger than either of the other two. In this last feature Brünn man differed from ourselves and represents a more primitive stage. Yet, on the whole, one cannot say that *Homo sapiens* has greatly altered since the later Ice Age, when he lived in the same territory as did *Homo primigenius*.

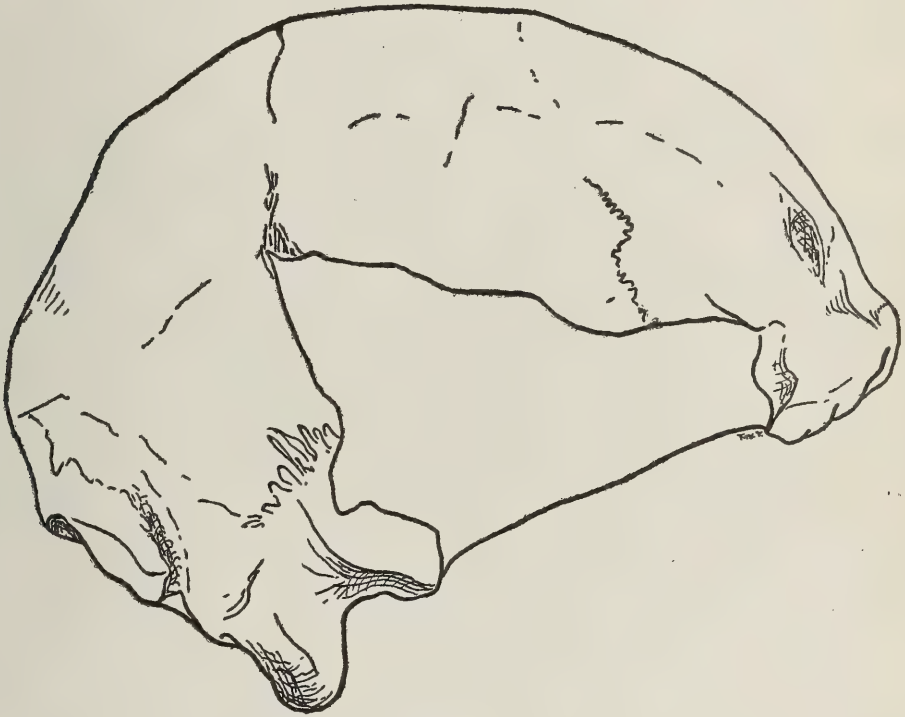


FIG. I

Right side of the cranium of the Brünn man. Half natural size.

This illustration shows the appearance of the skull of *Homo sapiens* in the latter part of the Glacial period.

Note the development of the supra-orbital and occipital ridges and the relatively high forehead.

Certain of the skeletons found in the cave at Krapina, the scene which so fired Professor Klaatsch's imagination by its tale of bloodshed, are said to have been of the higher race. Indeed, it is supposed that the Krapina relics are the result of a quarrel between the two races.

These two types of man roamed the same country at the same time, and seem both to have spread into the islands. It will be

remembered that the modern long-headed race has been driven westward by the round-heads, so that while the latter occupy almost all Europe, with the exception of the coast lines and the extreme west, the former live in the Mediterranean seaboard, in Norway and the British Islands. But it will be necessary to qualify this statement by saying that there were at least two long-headed types of man, and that the places mentioned are not all inhabited by a single type. It would hardly seem that *Homo sapiens* pushed Neanderthal man over into Great Britain as the westward limit, or that he was himself driven there by his more primitive

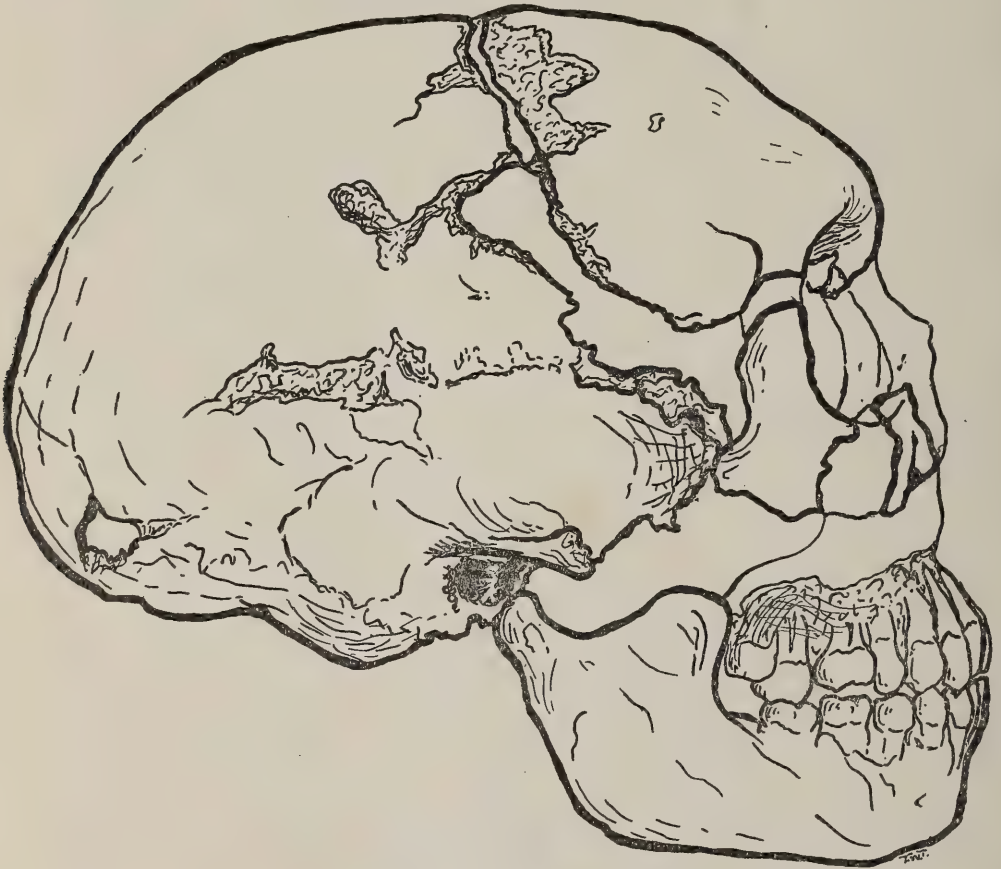


FIG. II.

Right side of the skull and mandible of *Homo Mousteriensis*, an individual of the Neanderthal race, for comparison with Figs. 1 and 3. Half natural size.

Note the low receding forehead, the great size of the supra-orbital ridges, their conformation being different from those of *Homo sapiens*, the low temporal bone, the small mastoid process and the distinctive characters of the mandible.

neighbor. Teeth of *Homo primigenius* have been found at St. Brelade's Bay, in Jersey, and a skeleton, very closely allied to *Homo sapiens* and belonging to the middle of the Glacial period, has been found near Galley Hill, on the south bank of the river Thames, in England.

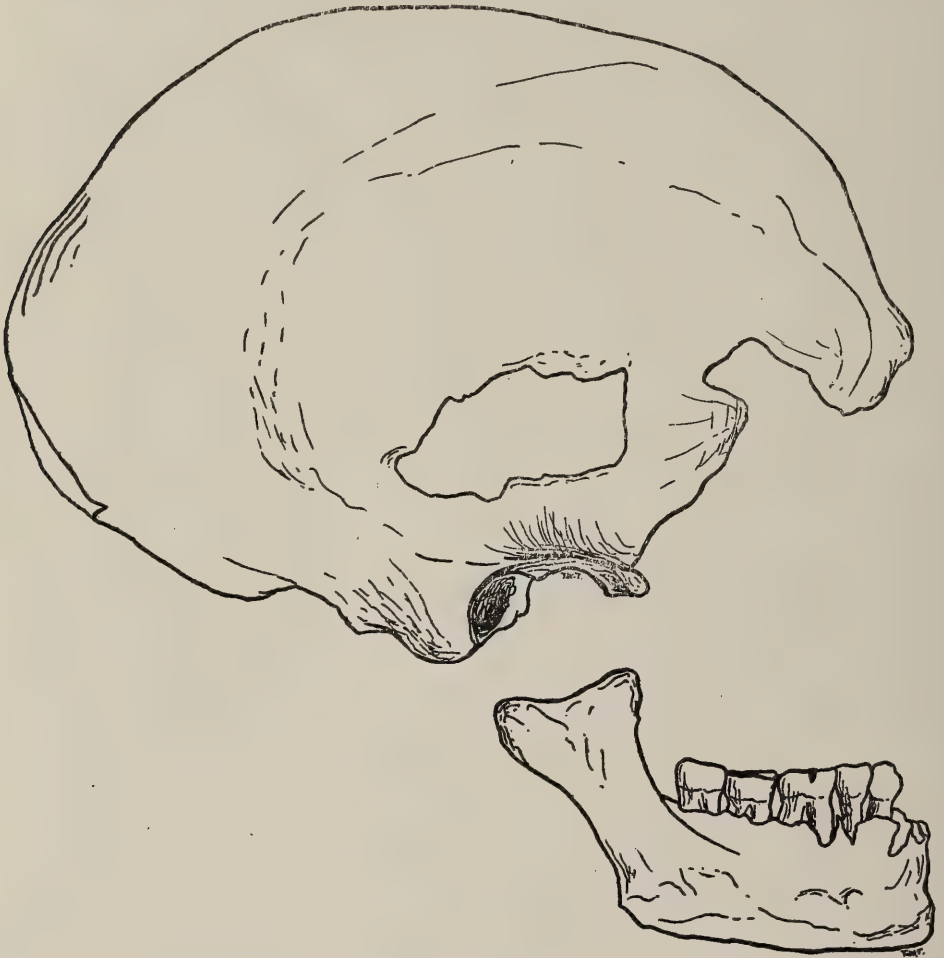


Of course it must not be thought that the skeletons mentioned in these demonstrations are all of those which have been discovered; far from it. In the time at our disposal we can but pick here and there. The Galley Hill skeleton was found in the Thames bank eight feet below the surface of the 100-foot terrace, and though the bones are said by many to belong to the third interglacial phase, they are by others assigned to a somewhat earlier period. Not all anthropologists, however, believe in the authenticity of the find. There are those who adhere rigidly to the preconceived notion that because a skeleton presents modern or approximately modern characters, it cannot be so ancient as the stratum in which it is found would lead us to suppose. However, the Galley Hill skeleton is accepted by many as really belonging to the middle of the Glacial Period, and hence it will be to our advantage to study it in some detail.

The bones are those of a man about five feet four inches in height, who like the modern Lapps was somewhat short in the leg and long in the arm. The femur measures 425 mm. in length, and presents a wide separation of the condyles. It is flattened from back to front and possesses a long neck, both features being similar to those of the femur in Neolithic people. Judging from the fragments of three stout ribs, the chest must have been rounded and strong, and as one therefore would expect, the clavicle is short, and it shows evidence of a powerful pectoralis major muscle.

As usual most of our information is gleaned from the skull. Its chief character is its long narrow shape, although one must not be misled and accentuate its narrowness. The bones, being soft when dug out of the bank in which they lay, were exposed to dry in the sun, and became greatly warped in consequence. It is certainly not because of the thickness of the bone that the skull presents its great length. There is no doubt that the skull is thick, but so are most ancient skulls and skulls of old people of today; it is not relatively so thick as is a Neanderthal cranium. The age of the man is uncertain. Some of the sutures are obliterated, but probably the individual was of early middle age, as the comparatively slightly worn appearance of the teeth indicates that they had only a moderate amount of use. The height of the cranium and the position of the external occipital protuberance are quite comparable with the same features in modern man. The mastoids are well developed, and the supra-orbital ridges

are a little more prominent than those of the present day. The height of the temporal squama is relatively greater than in Neanderthal man. The position of the temporal ridges has apparently been mis-stated. They are said to be high up on the side of the cranium, much higher indeed than in modern man. Such



FIGS. III and IV.

Right side of cranium and mandible of Galley Hill man, said to be of Mid-Glacial Age. Half Natural size.

By many authorities this skeleton is not accepted as authentic.

Note the general similarity in character to the cranium of Brunn man. The temporal ridge is indicated in its correct position. The teeth are essentially similar to those of modern man. The extreme length of the skull possibly exaggerates the original length, for the fragment was badly warped in drying.

a statement is at variance with the inference to be drawn from the area for attachment of the temporal muscle on the mandible, and is not borne out by the size of the supra-orbital ridges and superior curved lines of the occiput. Careful examination of the cast and of the original drawings of the cranium show that what has been mistaken for the right temporal ridge is really a warped crease on the bone. It is essential that warpings be



carefully distinguished, for in this skull and possibly again in that from Piltdown, they have led to erroneous interpretations. The real temporal ridge can be observed at a lower level than the warp, at the site on the cranium where one would naturally expect it to occur, after study of the mandible and the other cranial ridges. It is certain, then, that the temporal muscle of Galley Hill man was but little larger than our own.

The face is estimated to have been short and wide, characters shared also by the nose. But the bones of this region were not preserved. A considerable portion of the mandible remains, and from its measurements we may infer that the palate was similar to that of modern man, its breadth, however, being somewhat greater. The chin is present and the extent of the dental arcade reduced as in modern man. The mylohyoid ridges and the genial tubercles on the inner aspect of the symphysis are well developed, hence Galley Hill man in full possession of the faculty of speech. On examination of the ramus of the mandible, one is bound to differ from much that has been previously written concerning this skeleton. The sigmoid notch is certainly shallow, but this fact does not mean that the muscles of mastication were necessarily very large. The same condition is quite common in many primitive Egyptian skulls, the possessors of which, no one has accused of being endowed with abnormally large masticatory muscles. The areas of attachment of temporal and masseter muscles do not indicate that these muscles were huge, and it has already been mentioned that the stated site of the temporal ridge is probably erroneous. The muscles of mastication were, then, but moderate in development. We see this indicated once more by the divergence of the roots of the molar teeth. It will be remembered that in the last demonstration it was pointed out that in Neanderthal man the roots of the molars are fused to a considerable extent of their length. Of the teeth themselves the second premolar, as in modern man, is larger than the first, and the second and the third molars have but four cusps each. On the other hand, as in all primitive races, the third molar is the largest of the three.

If the Galley Hill remains are really authentic one gathers that men approximately modern in physical appearance lived so far back as the middle of the Glacial period, and have persisted with but little change down to the present day; meanwhile all other types of humanity or near-humanity have diminished and

become extinct. There is an ever-continuous tendency for primitive human types to disappear, witness the recent extinction of the Tasmanian, and the present diminishing numbers of the Australian Black. Only the more evolved races, the Negro, the European and the Mongolian, for instance, seem to be on the increase. But

## TABLE OF THE PLEISTOCENE OR GLACIAL PERIOD

One-Half to One and One-Half Million Years

(Early Stone Age—Palaeolithic and Eolithic Implements)

From Buttel-Reepen's Book, *Man and His Forerunners*.

Divisions	Human Races	Predominant Animals	Stages of Culture
Fourth Glacial Phase	Cro-Magnon (Reindeer-hunters)	Stag Reindeer Mammoth Rhinoceros tichorhinus	Azilian Magdalenian Solutréan
Third Interglacial Phase (100,000 years)	Loesshunters Cro-Magnon Late Neanderthals Loesshunters Grimaldi	Horse  Rhinoceros tichorhinus	Solutréan Aurignacian Mousterian
Third Glacial Phase	Neanderthal	Mammoth	Mousterian (Le Moustier Dordogne)
Second Interglacial Phase (200,000 to 300,000 years)	Neanderthal Eoanthropus?	Elephas antiquus Rhinoceros mercki  Cave Bear	Mousterian Acheulean Chellean Strépyan
Second Glacial Phase		Mammoth	Rostro-Carinate (Icenian) Palaeoliths   Eoliths
First Interglacial Phase (100,000 years)	First use of fire?	Elephas meridionalis	
First Glacial Phase	Homo Heidelbergensis?	Rhinoceros etruscus	
Pliocene	Pithecanthropus?		



where, it may be asked, does America throw light on this history?

It may be, although Doctor Ales<sup>v</sup> Hrdlicka<sup>v</sup> denies it, that the Nebraska and Lansing skulls, at least, may genuinely belong to the period in which the strata containing them were laid down. But even then we do not go further back than we have done in studying the Galley Hill man. America, at present, cannot be said to produce any unquestionable evidence on the history of *Homo sapiens* which is not presented in greater abundance in Europe. It may be that when the vast unexplored areas of this continent have undergone thorough geological investigation, America will take a more prominent part in displaying man's history, but she cannot yet be said to do so, and the enthusiastic statements by the late Professor Ameghino of the history of man's development in South America remain unconfirmed.

Is it justifiable to consider Galley Hill man upon our direct line of ascent, or should he be placed a little to one side? Such a question may not yet be convincingly answered. It may be that we should be adopting the better course to style him one example of *Homo fossilis*, and leave succeeding discoveries to decide whether or no *Homo sapiens* and *Homo fossilis* are one and the same. But can we trace our history further back than the middle of the Glacial period? *Homo fossilis* appears fully developed so far. Are there any remains which indicate his history as there are to show the evolution of Neanderthal man?

To answer this question, it will be necessary to discuss the latest relic of the past, unearthed at Piltdown, in Sussex, the scanty remnant of an individual romantically named *Eoanthropus*, the Dawn man. Let it at once be dismissed from the mind that so fanciful a name should indicate a peaceful discovery. This dawn was of the fieriest, nor have the lurid colors yet resolved sufficiently into sunlight to enable the fragments to be examined with an absolutely clear and unbiased judgment. The distance which separates this country from that in which the controversy has arisen perhaps allows us to take a more dispassionate view of the case, although casts of the fragments have not yet reached these shores, and hence we have only the published accounts on which to base our ideas.

Any lengthy discussion of the Piltdown skull would be out of place at present when the very facts of the case are in dispute.

It is probably more ancient than the Galley Hill specimen and more recent than the Heidelberg mandible. The thickness of the cranial bones is about the same as that of the cranium of the Galley Hill skeleton. The bony prominences of the occiput and supra-orbital ridges are not greatly developed. The temporal ridges are placed in about the same relative position on the cranium as in *Homo neanderthalensis*. The mastoid processes are prominent and projects downward as in modern man. There is an articular eminence on the temporal bone, such as is usually found with a reduced canine. The cranium is probably relatively shorter and wider than the Galley Hill cranium, but all remarks on the cranium of this skeleton are largely surmises, as so little of the bones has been preserved.

In the mandible there is a shallow sigmoid notch and a general Neanderthaloid appearance. The temporal insertion is relatively broad. The muscles of mastication were large, but not tremendously so. The absence of the mylohyoid ridge and the presence of a simian chin plate are very primitive characters but do not necessarily indicate that speech was yet relatively undeveloped. There is a retreating chin, as in Heidelberg man. But the mandible was fractured at the symphysis, so that only the lower part remains. One or two cracks, which are obvious at the symphysis in the figures though unmentioned in the description, and which occur in just the position one would expect if the bone, softened by maceration, had been exposed to a breaking strain at the symphysis, indicate that the slope of the bone may be exaggerated. But in the absence of the original fragment, one cannot be dogmatic on this point.

The molars are primitive in that they are long compared with their width, and that the second presents a fifth cusp. On the other hand, the necks of the teeth are constricted and the roots diverge. The third molar is missing, but had fully erupted. The lines of the molar teeth converge forward as in all human types. At first the canine was missing, but when found was seen to be reduced in size, though not so greatly as in modern man. Much of the controversy arose concerning this tooth, and unfortunately the first published account of it in America gave us an exaggerated idea of its size. The two subjects of disagreement in this skull are, first the cranial capacity, and, secondly, the simian character of the mandible. There seems no doubt that ultimately the first of these will have to be somewhat increased and the



second modified. But the whole discussion shows how far Anatomy is behind the experimental sciences. With us too much is inferred, too little actually proven.

Taking the characters all in all, we are probably correct in surmising that Eoanthropus lay very close to our direct line of ascent, but not upon it. Moreover, we may place in relative position the types we have now discussed by adopting Professor Keith's comparison. Both simian chin-plate and supra-orbital ridges are ancestral. In Neanderthal man the supra-orbital ridges are marked, the chin-plate absent. In Eoanthropus the chin-plate is obvious, and the supra-orbital ridges lacking. In Galley Hill man and in modern men both features are wanting. We have already spoken of Neanderthal man and his forerunners, Gibraltar man and Heidelberg man. We have now discussed modern man and his forerunners, Brunn man and possibly Galley Hill man. Earlier than these latter is Eoanthropus. Earlier than man himself, or at his origin, is Pithecanthropus, and far beyond, in the dim Eocene, we have a picture of our earliest ancestor, Propliopithecus.

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**Local Anesthesia.**—J. J. King, New York (*Journal A. M. A.*, May 30, 1914), describes a method of local anesthesia which he had found most satisfactory for resection of the nasal septum. Half an hour before he begins, the patient takes by mouth 1/150th grain of scopolamin hydromid to allay nervousness and as the therapeutic antagonist to cocain. Then he applies with a cotton wound applicator a 20 per cent. solution of cocain hydrochlorid over every part of the mucous membrane of the septum and repeats it immediately. After the second cocain application he makes a similar one of a 1:1,000 epinephrin solution and following this an injection under the septum perichondrium and periosteum on each side of from 8 to 10 c.c. of a sterile salt solution to which 5 minims of a 1:1,000 epinephrin solution has been added immediately before the injection. This completes the anesthesia and infiltrates every portion of the septum membrane, blocks off the nerves, prevents shock and renders the operation practically bloodless. It also aids in elevating the perichondrium from the cartilage and makes the dissection easy. He uses only 5 minims of epinephrin solution because this does not exceed the physiologic dose of the hypodermatic injection and he has found it in his experience sufficient to render the field bloodless without producing toxic symptoms.

## RASHES

By HOWARD D. KING, M. D., New Orleans, La.

Of the many diagnostic pitfalls with which the general practitioner is confronted, the question of determining the exact nature of an eruption seems of foremost importance. It must be borne in mind that all rashes are not obvious. Indeed, the patient, in many instances, has to be most carefully scrutinized and gone over—in short, a skin search has to be instituted. The advisability of looking for a rash is, as a rule, determined by the symptomatology as presented by the patient. Certain symptoms will preclude any need of a skin search, while others make it absolutely necessary. For instance, a child with headache, sore throat and vomiting might very well, if systematically and carefully examined, display evidences of a scarlatinal exanthem, although at first glance there might be little to warrant a diagnosis of scarlatina. Then again, the skin eruption might be the most obvious feature of the case.

Examination of an eruption is not a simple matter, and once an eruption is recognized it should be well studied, as want of care may give rise to embarrassing mistakes. In order that the correct diagnosis of an eruption be arrived at it is necessary to follow some definite line of examination. The following plan will be found very useful:

*Eruption*

Distribution,  
Character,  
Color,  
Facies,  
Constitutional Symptoms,  
Differential Diagnosis,  
Exclusion.

At the very outset, the distribution of the rash should be noted, that is, whether it is visible and general over the whole skin surface, or whether it avoids or exhibits a predilection for certain localities, as, for example, the face or the neighborhood of the larger joints. It has to be noted whether the extensor or flexor surfaces of the limbs suffer most, whether the arrangement is symmetrical on the opposite sides of the body, and finally whether the mucous membranes are also involved. To cite an



instance, the eruption of scarlet fever, generally, avoids the face, which is, on the other hand, always involved in the exanthem of measles. Now, the forearms, which in smallpox show a relatively profuse rash, are greatly spared by that of chickenpox. In the determination of the distribution of a rash certain of the proprieties of the diagnostic art must be thrown aside. Examine the patient from the crown of his head to the soles of his feet—skip not one inch of surface, and do not forget the interdigital spaces, and the separations between toes and fingers. In the case of children it is advantageous to strip them entirely, so as to obtain a general view. Refusal of an adult, especially females, to permit this form of examination will necessitate the examining of various parts of the body in succession. In viewing the body entirely stripped the bed should be so arranged that the light will fall directly and equally upon the patient. The inspection of the entire skin surface as a whole not only enables us to appreciate the distribution of an eruption, but allows an opportunity of immediately noting if its character varies in different localities—a point of considerable diagnostic value. Then again, the examination of the whole body diminishes the possibility of overlooking the remains of a fading rash. A scarlet fever rash, for example, fades from above downward, and may be still quite diagnostic on the legs when it has disappeared from the trunk. It sometimes happens that in certain situations an eruption will display a tendency to remain brighter and more typical than in others. Thus parts which are kept especially warm, such as the inside of the thighs, or parts which are dependent, due to posture, such as the back, may afford information which we would be unable to find elsewhere.

After determining the distribution, the next point to be considered is the character of the rash. Viewing rashes or eruptions from a purely clinical standpoint they may for convenience be roughly arranged into three main groups. In the first division may be classed eruptions arising as a result of a congestive hyperemia of certain areas of the skin, and which may be fairly described as erythematous. Included under the group would be simple and multiform types of erythema, punctate and papular rashes, and as a sub-division, the urticarial types of rash. The second division includes those eruptions, the elements of which contain lymph and includes vesicular, pustular, and bullous forms. In the third division are hemorrhagic eruptions which may either

present petechial spots resembling the marks left by flea bites, or true purpuric blotches of varying size, such as are liable to occur in the toxic forms of almost any of the infectious processes. Hemorrhagic spots, differ from the elements of the erythematous eruptions, in that they cannot be obliterated by digital pressure or by skin stretching.

Of the elements making up any definite rash in the first group there must be distinguished the mere erythematous flush from the "formed" rash. In some of the eruptive fevers, particularly scarlatina, the blending or coalescence of the elements of the rash sometimes imparts the appearance of a uniform redness, but painstaking examination will usually reveal the true characters of the eruption in some situation in which such blending has not taken place. But, as a general rule, the infectious maladies which present a rash show very plainly the elements of which it is composed. Thus, the predominant characteristic may be the punctate spot, a minute circular area of redness no larger than a pin's head, and usually not elevated at all above the surrounding skin level. In punctiform eruptions these minute spots are placed together very closely upon a slightly paler background. Or the skin lesion may be a macule, a colored spot, often rounded, but if large tending to be irregular in contour, and not elevated above the skin. In many eruptions it often happens that the macule rapidly becomes a papule, a circular raised spot frequently more or less conical in shape, and readily appreciated by the drawing of a finger lightly across the skin surface. It is through these formative elements which lend distinctive character to any rash, and by their grouping and distribution a diagnosis is established. Then again, the arrangement of erythematous macules, or large uniform blotches of redness, is frequently distinctive. They may be evenly distributed, they may be restricted to certain areas, they may present circinate or ringed patterns, or they may develop characteristic urticarial wheals in their center, and thus resemble nettle rash. In investigating an uncertain case all such peculiarities should be observed.

In the second group the elements if they are small-sized may be viewed as miliary. Such are the rashes due to hyper-functional activity of the sweat glands, very minute vesicles of clear fluid, frequently free of surrounding inflammation, once in a while on an inflamed base, and showing as red points. In scarlatina, likewise, when the eruption is very severe, a little amber-colored



fluid may form as a miliary point over the punctate spots. When the collection of clear fluid becomes greater it is called a vesicle, and if very superficial may take on divers shapes, as in chickenpox, while if imbedded deeper in the skin, as in smallpox, it inclines to be coniform with a circular base. Through the gradual formation of pus a vesicle is apt to become a pustule, as often happens in smallpox. Some pustules contain pus in their very incipency, as is observed in acne and the pustular types of eczema. The contour and size of the pustules, together with their location, may offer some clue as to their nature. Finally, other elements containing fluid are the "blebs" and "bullae," usually of comparatively large size and irregular shape, which arise in such conditions as erysipelas and pemphigus.

In the hemorrhagic group of rashes blood has oozed from the capillaries into the skin, and appears either as the very small circular petechial spot, to be diagnostically differentiated by the absence of the white central scar, or as an irregularly formed purple or maroon-colored blotch. It must also be borne in mind that it is possible for hemorrhage to occur into any of the elements of the other types or rash mentioned above. Therefore, there may be no escape of blood or blood-stained serum into the base of a papule or into a vesicular cavity. It is nothing less than the coloring matter of the blood which is responsible for the staining left on the skin after measles and certain cases of scarlatina.

The character of an eruption determined, it is necessary to try and obtain information from its color. This, however, can only come through long years of practice and experience, and the beginner is urged to observe carefully the colors displayed, for instance, by scarlet fever and measles. It is futile to try and describe color in words, but keen observers will be able to form a correct estimate of shade in the two maladies mentioned. Frequently eruptions due to causes other than the exanthemata present a distinctly bluish tinge, which is often of value in differential diagnosis.

The above examination, now, tells us of the distribution, character and color of the rash. Having completed it, we are able to state whether the distribution is general or only partial, and whether its elements are uniform all over the body. Certain eruptions are polymorphous or multiform, presenting a scarlatiniform appearance in one area, and morbilliform, circinate, or urticarial elements in another. Polymorphism is always a strong

proof against an eruption being one of the exanthemata, rubella, being, however, a marked exception to this rule. But even as concerns rubella, the presence of an urticarial wheal, or of a circinate distribution, on any part of the skin surface in the case of an uncertain eruption should be sufficient to exclude any idea of that disease. Another matter worthy of attention is the amount of irritation caused by the eruption. Much itching in an obscure case suggests that the eruption is due to serum, some dietetic irregularity, or other like cause, always assuming the eruption in question is erythematous in type.

The examination of the rash may well terminate with inspection of the face. What story does the face tell? Does it, for example, show the bleary eyes of measles, or the congested, drunken, stupid facies of typhus, or the circumoral wanness of scarlatina? Does the patient look really sick? Does he through the extensive brilliancy of his eruption look exceedingly fit? In eruptions due to drugs, foodstuffs, or serums, the latter is usually the case. Is the face puffy and bloated? A mild degree of oedema, especially about the eyelids is frequently observed in serum and food rashes. Too much dependence must not, however, be placed upon facial diagnosis, but taken in conjunction with other symptoms it is of great diagnostic import.

In every case the symptomatologic history, the patient and the objective signs at the moment of examination must be taken into account. As a general rule, freedom from constitutional disturbance points to the rash being an adscititious one, and not one of the exanthemata. As we shall observe in the case of individual diseases, there are deviations from the rule, but the absence of fever is nevertheless a strong argument in favor of the eruption being caused by food, drugs, or some similiar cause. Yet, a definite history of symptoms pointing to any single disease, taken in conjunction with an eruption peculiar to that disease would go far to outweigh the fact that the temperature is normal. A morbilliform eruption preceding catarrh, or sore throat, a scarlatinous rash may be offered as typical examples.

At this juncture it will be well to consider the rashes likely to be confounded with the eruptive fevers. First, a word as to typhoid fever, in addition to the specific rose-spots and their modifications (accuminate papules, petechiae, etc.), the following rashes are occasionally met with during the course of this disease: Erythematous rashes, sudaminal and miliary rashes, the taches bleuâtres, herpes, urticaria, and boils and pustules. At the outset



it is always possible that the prodromal rash of one disease may be confused for the true eruption of another. Thus scarlatinous prodromal rashes are present in measles, chickenpox and smallpox, and often create diagnostic confusion, the difficulty of their recognition being augmented by the fact that the patient may suffer from severe constitutional derangement. Secondly, the large group of drug eruptions has to be borne in mind. Thirdly, the many forms of serum rashes which may closely simulate certain of the exanthemata. Fourthly, *enemata eruptione*, due to intestinal absorption, may cause trouble as do the rashes of a like nature which occasionally follow saline or hydragogue cathartics. Fifthly, there are the food rashes, such as those induced by the eating of shellfish, strawberries, or various articles of diet, in regard to which an individual patient may possess an idiosyncrasy. Sixthly, septic eruptions, which sometimes follow extensive burns or are observed in septic conditions, must not be overlooked. And finally, various skin conditions, which cannot be designated in detail, such as multiform erythema from various causes, roseolar and pustular syphilides, herpes, acne and pemphigus may be erroneously diagnosed as one or the other of the exanthemata.

It may be of importance to know that scarlatiniform eruptions may take place in the prodromal stages of measles, chickenpox and smallpox, and may be also due to serum, enemata, and to the following drugs: Belladonna, quinin, various resinous substances such as copaiba, and to the synthetic preparations, as antipyrin, veronal and aspirin. Chloral-hydrate, morphin and chrysarobin may also produce a rash scarlatinal in type. Measles may be simulated by the eruptions induced by resinous drugs, by certain prodromal rashes of smallpox, by serum rashes, by erythema due to food, and by rashes having a septic genesis. Rubella, from the polymorphous character of its eruption and the clemency of its constitutional disturbance, is very apt to be confounded with serum, enema and food rashes. Smallpox may have to be diagnosed from iodid and bromid rashes, and from such conditions as acne or a pustular syphilide. In summarizing all these differences the distribution of the eruption, the character of the eruption, the uniformity of the eruption, and its association with symptoms peculiar to the disease under suspicion, considered together with the possibilities or probabilities of another cause will be the essential points to engage our attention.

In conclusion, as concerns hemorrhagic eruptions, care must be observed not to mistake flea bites for a petechial rash.

## MEDICAL EXPERIENCES IN KOREA

By A. I. Ludlow, A. B., M. D., Seoul, Korea.

It has been my desire for some time to send greetings to my former associates through the medium of *The Cleveland Medical Journal*.

Shortly after my journey around the world, an article was written entitled, "Observations on the Medical Progress in the Orient." It appeared in the October and November numbers of *The Cleveland Medical Journal* of 1908. In that paper some reference was made to the medical work in Korea, or Chosen, as it is now called. As many of you know, it is now a little over two years since we left Cleveland to come to this country.

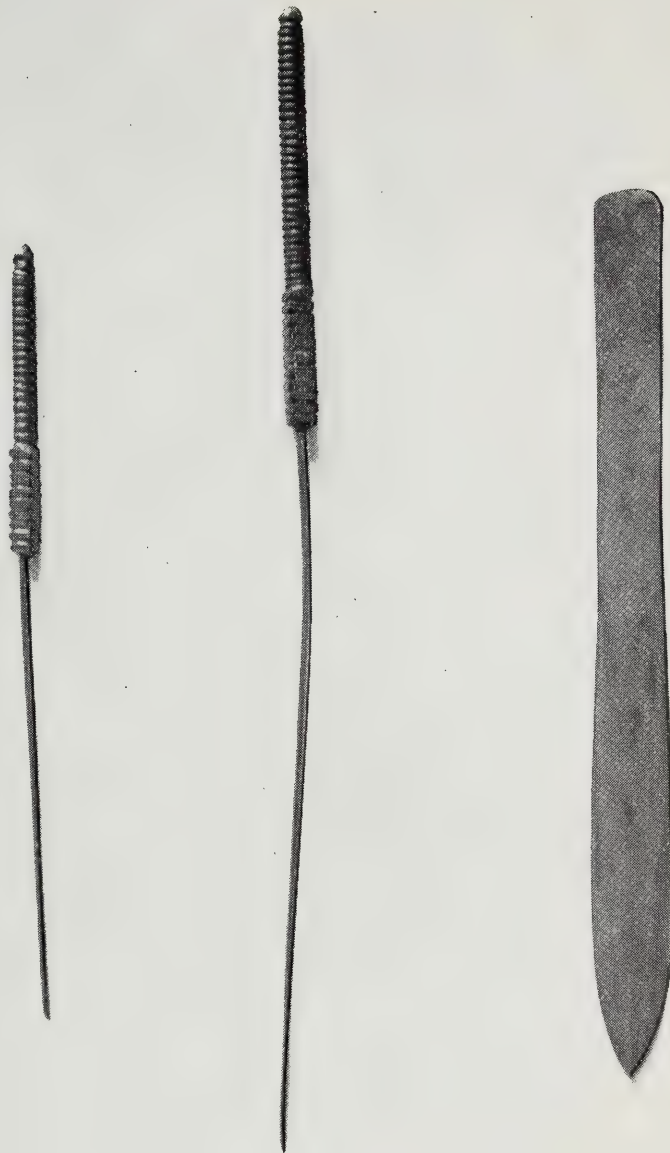
During this time there have been many things of interest to us and we hope some of them may be to you and the profession in general.

The first seven months were spent in a town of five thousand inhabitants, situated fifteen miles from the railroad. The small hospital and dispensary of Korean style of architecture was the only one for many miles. On this account there were, of course, many patients and the cases seen were often of an unusual type. One of the first operated was a woman with an ovarian cyst weighing seventy-five pounds. Patients with cysts weighing forty and thirty pounds were also operated. The smallest cyst of the three was the most difficult, on account of the extensive adhesions to almost all the viscera. This patient, like many others in Korea, had not only been burned by the native doctor, but also had been treated with the "chim," a metal needle about three or four inches in length, which is inserted into the abdomen as many times as the doctor deems advisable. This instrument is the cause of many infections and untold suffering. The three above-mentioned cases recovered.

There were three patients who had been bitten by supposed poisonous snakes. In one of these cases the bite was on the foot. The father of the patient called a native doctor, who tied on a tourniquet, then proceeded to insert the "chim" over two hundred times over the area of foot and leg. Then the whole limb was smeared with mud, hair and dung. You can imagine the condition of the leg when we saw it two days later.

One Sunday a woman came to the hospital, complaining of retention of urine. According to her statement, she had not





#### KOREAN SURGICAL INSTRUMENTS\*

Needles ("Chim") for Puncturing Inflamed Joints, or for Inserting Into the Chest or Even Abdomen.

Scalpel Used for Scarification or Opening Abscesses.

\*The above instruments were presented by Doctor Ludlow to the Cleveland Medical Library and are upon exhibition in the Museum.

voided for ten days. Although her home was only ten miles away, it had taken her three days to reach the hospital, as she was too poor to afford means of transportation. Upon catheterization one hundred ounces of urine were withdrawn. A few months after our return to Seoul we had another case in which one hundred and twenty-eight ounces were obtained.

Another case worthy of reporting was one of extra-uterine pregnancy. My Korean assistant was called one morning to a village some miles distant. He found a patient in labor, surrounded by the family and a native "sorceress," who by her incantations was endeavoring to drive out the evil spirits and thereby assist in the birth of the child. Upon examination it was found that the hand and forearm was protruding from the vaginal outlet. The father's name had been written on a piece of paper and was tied with a string about the wrist of the baby with the hope that this would assist the delivery. My assistant, however, finally convinced them that the woman should be taken to the hospital. The history was of a full term pregnancy. Labor pains had begun the previous noon and toward evening, after great suffering, the hand appeared. Its appearance was attended by a profuse hemorrhage. Doubtless the other members of the family had been applying great force to the abdomen in an endeavor to assist in the expulsion of the child.

The patient was carried to the hospital on an improvised stretcher and upon arrival, shortly after noon, was in a serious condition, due to further hemorrhage. She was put on the operating table, cleansed as well as possible, and examined. It was found that the arm was protruding from the abdominal cavity to the right of the uterus. My wife, who was acting as nurse and assistant, felt of the abdomen and said the child seems to be outside the uterus. We cleansed the arm as quickly as possible, replaced it and opened the abdomen. The child, apparently full term, weighing eight pounds, was found to the right and across the uterus. Although dead, it appeared to have been alive until a few hours previous.

It was an intra-ligamentary pregnancy. The placenta was attached to the right side of the uterus, or rather had been, for it was separated probably at the time of the labor pains. There was such extensive laceration of the cervical and vaginal portions that it seemed wise to remove the uterus. For six days after operation the patient was in good condition and had every



prospect for recovery, but on that day her husband fed her some Korean dried fish, which caused ptomaine poisoning, and she died twenty-four hours later.

Some days after, the husband came back to the hospital bringing me a chicken as a gift, saying that he was sorry that he had fed his wife the fish and that he wished me to know that he was grateful for all that had been done in the attempt to save her life.

Since our return to Seoul, in July, 1912, my work has been in connection with the Severance Hospital and the Severance Union Medical College, both established through the generosity of Mr. Louis H. Severance. At our recent commencement fifteen men were graduated. Six of them remain with us to spend at least a year of interne work. Five of the others will accept positions as assistants in various mission hospitals throughout the country. At present we have fifty-six men in the regular classes and twenty-one in the preparatory class. Our staff consists of men assigned from six different missions and in addition we have a number of our former Korean graduates as assistants in didactic teaching, dispensary and hospital work. With the increased staff it has been possible for us to do more specializing, and since last October all the surgical work has been under my care.

Among the cases of interest we have had several large ovarian cysts, one weighing fifty pounds, in a woman who with the tumor weighed only one hundred and twenty-five pounds.

Gall stones are not common among the Koreans, but last January we had two cases. The first in a man who had two calculi each two cm. in diameter both in the common duct. The second, a woman, who had also two calculi in the common duct. One was two cm. in diameter, while the other, a large oval stone, measured five cm. in greatest length and three cm. in thickness. It weighed thirty grammes. In both cases the calculi were removed by Choledochotomy, with recovery in each case.

Oxen are the common beast of burden in Korea. They are long-suffering and patient animals, but occasionally are aroused by cruel treatment and as a result sometimes inflict injury upon their tormentors. Not long ago a young man was brought to the hospital with a laceration as the result of being hooked, the horn entering the abdominal wall just beneath the ribs on the left side and tearing up all the layers of muscle as far as the symphysis

pubes. In addition to the injury to the muscle wall the bladder was lacerated through all its coats for a distance of four cm. The remarkable feature was that the abdominal cavity was not opened at any point, a fine example of blunt dissection. The bladder was sutured, the muscles repaired and the patient made a good recovery.

Liver abscesses are of common occurrence in Korea. During the past two years we have had ten such cases for operation, with nine recoveries. Among the more common cases are osteomyelitis, empyema, and tuberculosis in its many surgical forms.



Fractures and dislocations are comparatively uncommon. Our surgical work is often complicated by the presence of intestinal parasites. We make routine examinations of these feces in all our cases. The following will give you an idea of their frequency: In the last fifty examinations of hospital patients we found, round worm (*Ascaris*), twenty-five times; whip worm, (*Trichocephalis*), thirty-five times; *Taenia*, once, and hook worm, twelve times.

In closing, allow me to report the most marked case of cutaneous horns that has, in all probability, ever been reported.



The case is being exhibited in various parts of the city of Seoul as a freak. Unfortunately we have not been able to get a very accurate history.

The young man is a Korean, nineteen years of age. There is no history of a similar condition in the family. He has one brother and two sisters, he being the second child. His parents say that they noticed several red spots on the arm, leg, around the chin, on the forehead, also on the nose, and about the umbilicus. These were noticed when he was bathed shortly after birth. When he was two years of age warts began to appear at the site of these red spots. These continued to grow as he advanced in age.

At the present time he has no pain unless the growths are caught by his clothes or someone pulls the horny part. At times attempts have been made to cut away some of the growth. There is no pain unless cut is too close to the skin surface. The horns grow especially long around the pubic bones and on the testicle, so much so as to conceal his penis. He complains of itching when it is rainy or windy weather. He has a good appetite, but says that whenever he eats meat he is troubled with a condition like urticaria. He prefers to stay in cool places. The two enclosed photographs will give a better idea of the condition than a description.

If any one desires to know more concerning the work in Korea, it would be a pleasure for me to reply to any inquiries that may be made. With best wishes to all.

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**Etiology of Typhus Fever (and Brill's Disease).**—Harry Plotz, New York (*Journal A. M. A.*, May 16, 1914), describes the anaerobic methods used to obtain organisms in Brill's disease and describes the organism itself. From six cases of typhus he obtained an organism apparently identical with that isolated from cases of Brill's disease. Complement fixation tests were made using the serum of eight cases of typhus fever and antigens were made up from organisms obtained both from cases of Brill's disease and typhus fever. Serum from a convalescing typhus patient was proved to have bactericidal properties against the organism obtained from Brill's disease and typhus fever.

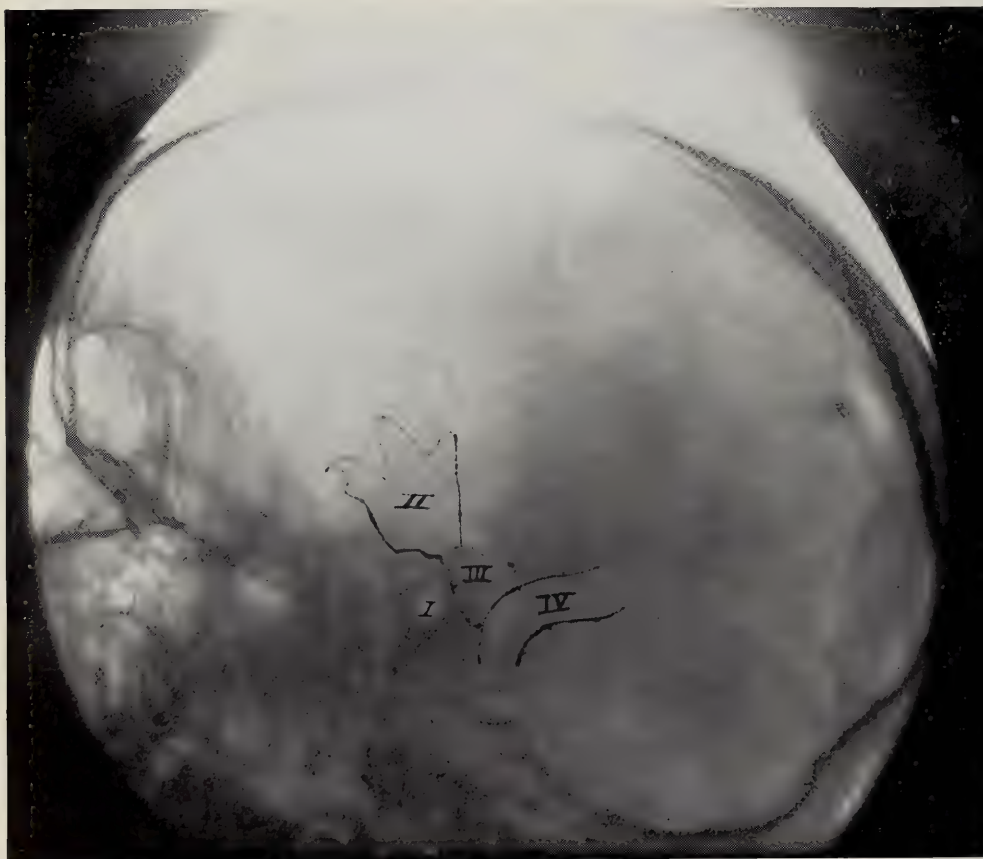
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**Deaf-Mutism.**—J. W. Stimson, Pittsburgh (*Journal A. M. A.*, May 30, 1914), reports a case of absolute deafness and mutism in a child 4 years old, due to an attack of purpura hemorrhagica at the age of 23 months. The loss of speech has been progressive since the attack, and as none of the text-books on hand report hemorrhagic purpura as a cause of acquired deaf-mutism, the case is recorded.

## TEMPORO-SPHENOIDAL ABSCESS SECONDARY TO CHRONIC SUPPURATIVE OTITIS MEDIA—OPERATION—RECOVERY—RADIOGRAPH FINDINGS

By. J. M. INGERSOLL, A. M., M. D., Professor of Oto-Laryngology in the Medical Department of Western Reserve University, Cleveland, O.

The patient was a boy, fourteen years old. He had had a chronic suppuration in the left ear for three years. On November 20th, 1913, he was brought to Lakeside Hospital and his mother said that six days before, he had fallen to the floor unconscious and had remained so for several hours. After that he had had repeated attacks of vomiting and had complained of severe headache and some dizziness. He was examined by me soon after



Radiograph of Head Showing Temporo Sphenoidal Abscess.

I. External auditory canal. II. Shadow of brain abscess. III. Shadow of cholesteoma. IV. Sigmoid sinus.

J. M. Ingersoll, Cleveland, Ohio.

admittance to the hospital. There was a foul purulent discharge from the left ear and the posterior canal wall was prolapsed; no nystagmus, no strabismus, pupils equal and reacting normally, eye grounds normal. He was very restless and irritable and his



cerebration was sluggish. His temperature was  $97.4^{\circ}$  and pulse 65. The hearing in the right ear was normal and in the left ear it was fifteen one-hundredths. Lumbar puncture and blood count were negative.

A stereoscopic radiograph showed a cholesteoma filling the antrum and extending backward and downward over the sigmoid sinus. The two vertical semi-circular canals showed very distinctly. The symptoms, of course, suggested a brain abscess, but we were unable to locate it in the radiograph at this time.

A radical mastoid operation was done, the cholesteotoma was removed and as the sigmoid sinus had been exposed, over an area about two centimeters long and one centimeter wide, by pressure necrosis from the cholesteotoma, it was thought that perhaps this was enough to account for the symptoms of brain irritation.

For three days following the operation the pulse and temperature were normal and the brain symptoms improved. On the fourth day the temperature was  $102^{\circ}$ , pulse 110, there was a paralysis of the left external rectus muscle, ptosis of the right upper lid and a beginning optic neuritis. The patient was much more irritable and complained constantly of severe headache. At times he was partially unconscious.

On account of these symptoms a second operation was done immediately. The mastoid incision was opened, the dura exposed over the antrum and middle ear, incised and a brain knife inserted upward and slightly forward for three centimeters. About two ounces of foul, thick pus was evacuated and the cavity was lightly packed with iodoform gauze.

After the second operation the patient began to improve. The first dressing was done on the fourth day and from this time on the recovery was uneventful.

The hearing now (February 16, 1914) in the left ear is twenty-two one-hundredths. The paralysis of the external rectus muscle has almost entirely disappeared, there is no ptosis of the lid and the eye grounds are normal.

One week after the brain abscess had been operated upon a second stereoscopic radiograph was made, while the gauze packing still extended up into the abscess cavity. This was done in order that we might locate definitely the abscess cavity in the radiograph and then study the first radiograph. With the aid of the second radiograph, a more careful study of the first one shows a darkened area in the region where we now know the abscess cavity was

located. This dark area begins over the roof of the middle ear and the antrum and extends upward into the brain, ending in three finger-like projections. We feel very confident that this shadow was caused by the brain abscess and that our failure to recognize it, before the first operation, was due to our lack of experience in interpreting the radiographs of a brain abscess.

We believe that we will be able to recognize and outline fairly accurately brain abscesses, as we gain experience in the interpretation of stereoscopic radiographs of the mastoid.

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**The Medical Department of the Army in the Civil War.**—A very interesting address of Dr. Weir Mitchell, of Philadelphia, before the Physicians' Club of Chicago, is reproduced in the *Journal A. M. A.*, May 9, 1914. He mentions the old medical department of the Army, consisting of 30 surgeons and 83 assistants, a considerable proportion of which went with the South during the Civil War, though a number of Southern surgeons stood true to the flag. The Surgeon-General had to be retired early on account of age and the vacancy was filled by the appointment of Dr. W. A. Hammond, whose able administration in view of the tremendous problems involved, friendship to scientific work, etc., are mentioned. Dr. Hammond used a great opportunity as few could have done, but he was impulsive and overconfident and when he at last came in contact with the autocratic Secretary of War, Mr. Stanton, he was court-martialed, and, as Mitchell says, unjustly removed from the Army after a service of unequalled value. Mitchell describes the building and organization of the great military hospitals which speedily became admirable and anticipated many of the ideas which are now being advanced. There were, of course, things seen in the surgical wards which it is to be hoped will never be seen again, but great advances were made. To meet the needs of the field and the hospital service, Hammond created the rank of brigade surgeon; another creation of his was that of the medical cadets, among whom some of our best-known modern surgeons started in their career. Some of the surgeons lost their lives under fire and there was, under the circumstances, an appalling mortality and much bad surgery. Mitchell's memory of hospital nurses during the war are mixed. The orderlies soon became rapidly efficient for the less exacting duties of that time. Some of the woman nurses were not above criticism, but there are some of whom he has since thought with grateful remembrance. Some of his interesting personal experiences are given and he mentions his study of nerve lesions, which were among his earlier contributions to medicine. The military surgeons of the Civil War have not received, he thinks, due recognition. In the battle of Gettysburg, and other battles every place where a general fell is marked, but we should remember that the marking of sites of corps hospitals with bronze shields and the names of the surgeons in charge, as he suggested to the Gettysburg commission, is the first national recognition of the surgeon of the Civil War.



## THE DEAF CHILD AND HIS EDUCATION

By GRACE C. BURTON, Principal of School for Deaf, Cleveland.

The deaf child's future depends largely upon the character of the advice the physician offers the family as to its disposition. Parents of children with congenital or acquired deafness have generally very little conception of schools or teachers for their little afflicted ones and appeal first to their family physician and then to the specialist for advice. It lies largely with the latter to bring these parents to a sense of their obligation for their intellectual well being, and it is most important, therefore, that he should have correct data and information concerning local institutions in order that he may advise wisely as to when, and where, to place the child.

The attitude of the physician is generally, naturally, clinical rather than pedagogical. Dr. Love calls it "a post-mortem" interest. I want to quote from a letter written by Helen Keller to Dr. Love in this connection. She says: "I have heard of children who were under medical treatment and who were allowed to remain in ignorance for years. That is, the doctor tried to do something for the diseased organ, but he gave no practical advice about the child. I have received letters from parents of children who were either deaf or feeble-minded, the parents could not say which. The doctor did not know or else he did not tell them the truth. I do not wish to complain of the great brotherhood of physicians. I believe with Stevenson that a physician 'is the flower of civilization.' We look to him, not only to alleviate but to teach us how to prevent infirmities. Now we are greatly in need of information gained by scientific study of the deaf child and are asking that the physicians tell the public the truth, that is, as much of the truth as they know."

The scale of ages of children entering the kindergarten and first grade of the School for the Deaf in Cleveland this fall was as follows: 1-4, 3-5, 5-6, 5-7, 9-8, 3-9, 4-10, 2-11, 1-13.

A few cases that have come under our own observation may solve for you some of the causes for the late entrance into school of so many of these children.

First: Four children congenitally deaf. Their physicians have told the parents that they will probably outgrow the deafness and will talk when they are about ten years old. This, in these cases, seems extremely problematic. If they should, however,

well and good. Wherever there is the least chance of any improvement let them have every advantage of regular treatments, but, in the meantime, put them in school and let them make a start in their educations. Nothing that they can learn can possibly harm them, if their hearing comes, and consider all the precious, formative, first years that have been wasted if they remain deaf.

Second: A child was reported from the public school. She was apparently bright but had been in the first grade two years and had accomplished practically nothing. Her speech was very defective. We tested her both *viva voce* and by the forced whisper test, at a distance of six feet, with her back turned, and were convinced that she heard no voiceless consonants, at that distance, and that it was evidently her hearing alone that was retarding her progress. Principal and teacher agreed that she was a subject for a hard of hearing class in the deaf school where she would be taught both through her speech and through speech reading.

In these classes there are not more than ten pupils. Each in turn stands close to the teacher while she speaks to her clearly and distinctly. She is then taught, in turn, to read the lips of the other children reciting so that she may help out her defective hearing. All recitations are through speech alone and are carried out along lines of recitations in the public schools—the same subjects being studied. Defective speech is carefully corrected and correct English only accepted.

The mother of the child in question took her to a specialist. He advised her, under no circumstances, to put the child in "The School for the Deaf," as she would soon lose both her voice and her speech. As a matter of fact, that is exactly what she will do in the hearing school, more or less, in addition to making no advancement, and, at the end of five or six years, when she can no longer be pushed from grade to grade (at the end of the second year) and her bad speech and study habits have become fixed, they will probably send her to "The School for the Deaf," where she will be obliged to begin her education at the same point where she would begin now. If she came to us now, by that time she would be in the fifth or sixth grade and would, probably, be proficient enough in speech and lip-reading to return to the public school and cope successfully with hearing children of the same grade.

Third: Two semi-deaf boys were reported to us at the same time. One of them of excellent mentality; the other, a child of



mentality rather below the average. The specialist whom their parents consulted, advised both to keep them in the public schools or, at least, not to send them to a deaf school. He said: "These children hear. The only difference is that they will not pay attention. They must be taught to listen." Plausible, certainly, but he failed to take into consideration two things: First, that it is the function of the school for the deaf to teach deaf children to listen, and that they cannot be taught this in a crowded classroom in the hearing school.

If you would like to know about how much children of this class hear, stand on the outer edge of a large crowd and try to catch what the speaker is saying. Your hearing is perfect, but how long would you try to listen even if the subject was extremely interesting?

From long experience we knew the outcome and pleaded with the parents. The mother of the bright child was obdurate. The slow child was placed in school. This was two years ago. What is the result? The slow child is reading very nicely. He talks constantly and is learning to watch for his own mistakes and correct them. His vocabulary is increasing rapidly and he will be able to enter the third grade, with a plus, next year. The brighter child is now nine years old. At present he is taking private lessons. His speech is more defective than three years ago. He is still taking first grade work and does not understand the sentences he reads very imperfectly. He will probably enter the "School for the Deaf" next year, entering a class two years behind the slower child.

I might cite numerous other instances, but will mention only one of a congenitally deaf child just being taught to talk, who was operated upon for "tongue-tie" to cure her speech. Another of a physician who is attempting to persuade the mothers of two deaf children to put their children in a private school with feeble-minded children, surely not realizing the radical difference in educating the two classes, or the necessity for keeping the deaf child as far away from the feeble-minded one as possible.

And, finally, the case of two children kept out of school that it might be demonstrated, through Christian Science, that they were not deaf. This reminds me of the story of the little girl who had a very sick dog. She went to her mother in great distress and said: "Mother, what shall I do? I am afraid Fido is going to die. I gave him some milk and he couldn't drink that and I gave him

some of my cough medicine and he couldn't take that. Then I gave him one of your pills, but he refused even that." Her mother considered gravely and then asked her if she hadn't better try Christian Science. "No, it's no use, mother," she replied, "I tried that too and he couldn't even swallow that."

We don't know whether our children couldn't swallow *that*, but we do know that they lost two years of work while they were trying the experiment.

We are convinced that, in none of these cases, was there any ill-will toward the school. It was perhaps in some cases love of experiment, but, in general, merely inadequate knowledge of the needs of the child or of the school's ability to meet these needs. Perhaps, too, there was the dread of hurting the parents, by telling the whole truth. It only goes to prove that, in rare instances, the specialist himself needs instruction as to the pedagogical needs of the child.

We are willing to guarantee that no child will lose *any* speech and that the quality of his voice will *not* deteriorate, neither will he lose in mental acumen, through entrance into an oral deaf school. We might almost be willing, indeed, to offer a thousand dollar reward for any case of a semi-mute or hard-of-hearing child who will not GAIN in correctness of speech, proficiency of language, and greater ability to hear (if the hearing remains at fixed quantity), through being in special classes reserved for him at the school.

In contravention to the cases cited above, we are anxious to pay tribute to numbers of specialists in our city who are making a careful and scientific study, not only of deafness itself, but of the methods of deaf education, and to state that many deaf children owe their educations to the advice, and even the insistence, of these physicians that their education be begun at the earliest possible moment and that with children gradually becoming deaf, sending them as long before complete deafness overtook them as possible is a saving to them in time and effort.

Some are born deaf; some achieve deafness and some have deafness thrust upon them. Statistics show that about 40 per cent of the children are born deaf, 57 per cent become deaf through illness, and 3 per cent through accident. The problem of the education of the deaf, therefore, is no narrow one. It must include the teaching of all sorts and conditions of people who have, to any extent, however small or great, lost their hearing.



In our own school children are classified under four heads. Total deafness *before* speech has been acquired; total deafness *after* speech has been acquired; pronounced deafness and slight deafness.

The last two named classes deserve more consideration than they usually receive. Kept in the normal schools through the mistaken sympathy of the kind-hearted principal or the doting mother who dislikes to brand the child as deaf, he loses the greater part of the recitations of his classmates and the explanation of the teacher. Frequently the teacher does not realize the reason for his apparent stupidity and her reprimands increase his sensitiveness and the fear of making mistakes, until he either suffers physically, or becomes utterly indifferent, often, too, surly and unruly. Seeing his classmates promoted while he is left behind, his work becomes distasteful to him and he discontinues it at the earliest possible moment and thus goes out into the world entirely unprepared for duties which the normal child frequently meets with difficulty. All this might be avoided.

Any child who cannot take the whisper test at ten feet, with his back turned to the person testing him, should immediately be placed in a school for the deaf, in a hard-of-hearing class, where he will receive special acoustic training and learn lip-reading. He may thus be given a chance in the world with his more fortunate, hearing, brother. Note the change in the faces of these children after they have been in such a class a month and you will never again compel any such child to endure the torture of remaining in a hearing school.

The child who loses his hearing entirely after having acquired speech presents another interesting problem to the educator. If all such children, immediately upon their recovery from the illness which has caused, or is going to cause, deafness, were taught to understand spoken language by watching the lips of the speaker, their speech could be preserved and they could, in many cases, re-enter hearing school with a minimum of handicap and complete their educations there.

This rarely occurs, however, for few parents realize that a child possessing normal speech, even up to ten years of age, will become a deaf-mute, if the hearing is lost, unless prompt attention is given to his instruction in speech and speech-reading. They do not realize the tremendous advantage of such instruction nor, often, how or where it may be obtained. If they do know

this their relatives or friends persuade them that no good thing can come from association with other deaf children and they, therefore, either keep him out of school or allow him to struggle along in the hearing school, understanding little or nothing of what is going on and rapidly losing that precious gift of God given speech which can never be restored to him in like measure.

Probably only when their natural language (which could have been easily preserved, had they learned lip-reading as soon as they became deaf) has been lost forever and they must be taught language from the first, mechanically and laboriously, do they turn to a school for the deaf. What a waste of precious time and natural endowment!

If we secure the hard-of-hearing, and those who become deaf through disease and accident, in time, half the labor, yes 80 per cent, is eliminated, for neither articulation nor language structure must be taught. All that is necessary is constant watchfulness to correct errors of pronunciation and to retain, as nearly as possible, the natural voice. These classes of children usually take up lip-reading more easily also, since, having enjoyed the normal physiological and psychological exercise of speech, they retain perfect ideas of its quality, think in speech and have a practical knowledge of language. They are thus able, from living knowledge, to gauge contexts and fill up verbal gaps to complete meanings.

The case of a congenitally deaf child presents a very different and much more difficult problem. It is now well known that those whom we term deaf mutes have no other natural defect save that of deafness. He is born with all the potentialities of the adult brain. Every convolution is present at birth. His vocal organs are perfect. He has the power to make use of them.

"The normal child has three principal storehouses of language. In the auditory area of the brain are stored words received through the ear. In the visual area, words received through the eye while reading; while in the motor area is stored every spoken word. These three centers, connected by the nerves of association, which alone render them operative, constitute the mechanism of speech within the brain. The congenitally deaf child comes to us without a single impression in any one of these centers."

Their lack of articulate speech, however, results from lack



of instruction and not, as said before, from any defect of the vocal organs. No one naturally acquires, without instruction, a language he has never heard. But if they do not naturally speak, how do they think? It is difficult for us to realize the possibility of a train of thought carried on without words; but what words can a deaf child know who has never heard the sound of the voice? Let us eliminate from our consciousness all language and what remains? It is impossible to answer, but it is this, and this alone, that belongs to the thought of a deaf child. If you would try to realize the blankness of his mind, consider what your mental condition would be were you to wipe out from your memory everything you have ever heard and everything you have read.

The inestimable value of hearing in the physiological speech centers in the normal child is strikingly demonstrated to thoughtful persons when they compare the blind with the deaf. "Although the former receives considerable more sentimental sympathy than does the latter, the blind child has far less difficulties in education. It is true that one of the main entrances of communication is closed to him, but it is one by which general effects rather than exact thought impressions reach his brain. So long as he has hearing his speech progresses with practically the same rapidity as in the normal child and his intellectual development proceeds at an almost equal rate.

The congenitally deaf child obtains his general effects through the visual organs, but, by reason of his aural defect, he can neither obtain expressions of exact thought nor formulate his own thoughts in exact terms. Consequently, he begins his school life at seven or later, in the intellectual condition of a child of two. In plain words, for five previous years his intellectual development is neglected.

Helen Keller in a letter to Doctor Love has said: "The problems of deafness are deeper and more complex, if not more important, than those of blindness. Deafness is a much worse misfortune, for it means the loss of the most vital stimulus the sound of the voice that brings language, sets thoughts astir and keeps us in the intellectual company of man."

Let us consider briefly how the deaf child receives his impressions. Everything received through the ear is excluded. The sound of the word, the intonation of the voice does not make the least impression, any more than the howling of the wind, the

rushing of water, the singing of birds or the rustling of the leaves. What an immense number of impressions that increase our knowledge, form our characters and work upon our minds are lost to him! All his impressions must be received by the senses of sight, of touch, of taste and of smell only. He must see and feel everything.

If one only partially realizes this he cannot but see under what a terrible handicap a deaf child labors. Does not common humanity demand that we use every means, even to compulsion, to bring under instruction, at as early an age as possible, these children of silence?

It has been fully demonstrated that the accomplishment of lip-reading and articulation, and through them language, difficult of accomplishment as they certainly are, give broader intellectual vision than any other method. The mere acquisition of speech and power of understanding and uttering words, brings growth in thought power and in the ability to draw fine distinctions.

Think for a moment of the enormous difficulties of teaching these subjects to such a child. You can imagine yourself going to China without an interpreter and learning the Chinese language. But, after all, you have a medium of translation beside being in touch with the new language at every turn.

You might endeavor to teach English to a little foreign child who could see you through the window but could not hear you for the noise on the street. Do you think you would find it easy? It would be simple compared with teaching a child to speak any language who has not only never heard but has absolutely no vocabulary. Any language is distinctly foreign to him. He must learn it as a hearing person learns a foreign language with the additional handicap of being without any language in which to receive instruction, or with which to compare the new language he is learning. No lexicon can aid him in the early stages. Moreover, outside of the few hours spent in the class room, unless the parents co-operate intelligently, he is left alone in silence. The daily and hourly communication with those who know the language he is learning is, obviously, impossible for him. Is it surprising, then, that at the end of the fifth year congenitally deaf children begin for the first time to use the books of little hearing children intelligently, and is it not wonderful that at the end of the twelfth year the average child can take the same eighth grade school examinations as his hearing brother?



How then is it done? Entirely through the power of imitation. And, just as with a hearing child, imitation of heard sounds brings speech, so, with a deaf child, the imitation of visual images brings articulation and finally language or speech proper. For speech is articulation plus language. A child of six will often in a year acquire all the elements of articulation, but he still has no speech. This articulation practice is simply an instrument to be used with lip-reading through the long course of study required to give him an understanding of language. Beside that task the work of the articulation teacher sinks into insignificance.

Those who reflect know that words taken by themselves mean nothing. I could repeat for weeks a word unknown to you and neither pronunciation nor writing would help you to a knowledge of its meaning. We only know what it means by the indications and explanations that accompany it. While pronouncing the word we indicate the object, we perform the action. We express every phase of feeling by the intention of the voice, by the expression on the face, by gesture and attitude.

It stands to reason that we do the same with the deaf child. He spins his top. We take the top, point to it and say "top." The child sees that the mouth is opened, the tip of the tongue placed behind the teeth and then that the lips are brought together, after which he feels a puff of breath upon his hand. He does not analyze this, but he afterwards connects this facial image with the top. By saying it over and over again, he may be brought to pronounce it with reasonable distinctness and will say it when he sees the top.

If each separate sound had a distinct facial image, the difficulties would be greatly lessened, but different sounds and words have the same facial image. Thus p, b, m,—pane, pate, paid—look the same to the deaf child. It is here that context steps in and intelligence. It is truly a psychological problem. Fortunately thought looks forward and anticipates. So that, although we do not have an accurate word for reproduction, we get the correct idea. A natural born lip-reader always has this intuitive synthetic power highly developed.

But, you will ask, can the average deaf-born child achieve this and is the speech and lip-reading they acquire worth while? Coming from all conditions in life, with all sorts of training, dispositions and ability, we do not expect that they will have equal facility in speech or lip-reading any more than we expect

all hearing children to become Carusos or Sidises. We do find, however, that their speech and lip-reading stands the test of intercourse with their families and employers and this is, after all, the crucial test.

The deaf must live their lives in a world where hearing is one of the fundamental conditions and they must be, as well as possible, prepared to meet these conditions. The deaf person whose principal means of communication is a silent one, who is incapable of understanding the speech of those about him, is deprived of one of the highest of human attributes. He is, as some one expressed it, "exteriorly deaf and internally dumb." Those who depend upon speech, however imperfect, for their communication with their fellows are far less segregated and differentiated from the community by reason of their deafness than those taught by silent methods.

By this we do not mean to claim that we restore these children entirely, through the oral method, to society. Congenital deafness makes this impossible. But we believe that we approximate it as nearly as possible, taking into consideration their severe hindrance to normal intercourse.

We expect to occupy in September, through the generosity of the citizens of Cleveland, one of the most finely equipped new school buildings for the deaf in the United States, and we hope to give some of the best instruction ever given deaf children in that building.

Will not those of you who come into contact with the deaf children of Cleveland, in an official way, first of all, bring these children to our attention as soon as you know about them, so that they may be brought under instruction in their tender years, when the most lasting impressions are made? So, too, that they may have sufficient years before them to be able to finish the course of study in its entirety.

This year we will graduate four children from our eighth grade and they all expect to enter high school in the fall. In June one of our congenitally deaf graduates will graduate from Technical High School and his principal paid him the highest of unconscious compliments the other day, when, in speaking of him to his former teacher in our school, he said: "But S—— hears." Thus nearly does he approach the normal.



## THE MATING OF THE UNFIT\*

By Rev. T. S. McWILLIAMS, Cleveland

While I have been introduced as chairman of the Eugenics Committee of the Federated Churches, I hasten to explain that it is with but one phase of that great subject that my committee has attempted to deal. Indeed it is but a negative eugenics that we are advocating. Our attempt is much less ambitious than the wording of my subject would indicate. It is by no means *all* of the unfit that we are seeking to prevent from mating and multiplying, but only those whose unfitness is due to venereal disease.

Personally I am convinced that there are many others besides the venereally diseased who are unfit to marry. There are others whose offspring will almost certainly become a burden to the state. There are persons otherwise diseased in body, or feeble in mind, or vicious in character, whose marrying is unsafe, unsocial, criminal. I believe it is high time for us to recognize in practical ways that the law that like produces like obtains in the human family, as well as in the animal and vegetable worlds. It is worse than folly to permit the marriage and reproduction of the flagrantly unfit in the sentimental hope that by some biological miracle the offspring will be all right. It is as unscientific as it is irreligious to ignore the fact that "the iniquities of the fathers are visited upon the children unto the third and fourth generation." For the state which makes it a misdemeanor to breed diseased horses and cattle and hogs not to attempt to prevent the mating and multiplying of those whose offspring will almost certainly become a burden to the state seems inexplicable.

Never before were society's obligations toward delinquents and dependents so fully recognized and so grandly met. Prof. Davenport, of the Carnegie Institute at Washington estimates that there are in the United States 300,000 insane and feeble-minded, 160,000 blind and deaf, 80,000 confined criminals, 100,000 paupers, and 2,000,000 charity patients annually cared for in our hospitals. In other words about 3 per cent of our entire population are delinquents or dependents. To care for this vast number costs in money more than \$100,000,000 annually. According to the superintendent of the Athens State Hospital, the care of Ohio's delinquents and dependents in 1910 cost \$4,535,586 or nearly one-half of the total revenue of the state. Is it not

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\*Address delivered before the Cleveland Academy of Medicine, April 17, 1914.

high time for us to ask, Whence come these vast hosts of delinquents and dependents?

The press of Cleveland some months ago had much to say about a crippled old woman who had been refused a license to sell papers on the streets; and when she persisted in doing so without a license she was arrested. The mayor himself told me that the old woman was crippled in body, feeble in mind, and immoral in character; that she was the mother of 13 children, 8 of whom were illegitimate and 5 of whom were defective. In my judgment the real crime of Cleveland was, not in refusing that loathsome creature license to exhibit and trade upon her misfortunes, but in having permitted her to bring 13 children into the world.

I realize, and you will readily realize that to prevent the marriage of such flagrantly unfit is not enough. Other measures, such as sterilization, will be necessary to insure against this reproduction. And when we come to deal with such phases of the great eugenics problem, I feel confident that we shall have the earnest and powerful co-operation of the great medical profession. Your self-sacrificing zeal and wonderful achievements in the line of preventive medicine warrant the expectation of your zeal in this preventive philanthropy.

But at this time, remember, we are asking your counsel and co-operation regarding a single type of unfitness to marry. Epilepsy, feeble-mindedness, insanity, tuberculosis, chronic alcoholism and other forms of unfitness we shall have to deal with in time; but now we are dealing with the one question of venereal disease. We are content at present, I frankly admit, to get in the thin edge of the wedge. You are not only physicians, but biologists and sociologists and philanthropists. I do not know any profession, not excepting my own, which dispenses so much practical and helpful philanthropy as your profession. And it is mainly from the standpoint of preventive philanthropy that we ask your counsel and co-operation. The trouble with our philanthropy has been that it is too exclusively remedial, not sufficiently educative and preventive. It is too exclusively concerned with consequences, not enough with causes. We are ready enough to rush the ambulance to the wrecked individual at the bottom of the precipice; we are not sufficiently interested in the prosaic work of putting a fence at the top.

Now some of us ministers are sick of appealing for remedial



charity, while the causes of want and suffering go on unchecked. We are glad to do what we can do to relieve and comfort the poor; but we are beginning to inquire earnestly and deeply into the causes of poverty. We have worked and pleaded for the blind, and so long as we have hearts in us we must do so. Especially are our sympathies touched for the little children who come into the world blind, or lose their sight in infancy. To stumble in darkness from the cradle to the grave—what fate could be sadder than that? But we are learning that such misfortunes are not to be blamed upon an inscrutable Providence at all. You physicians have told us that in 95 cases out of 100 this ophthalmia neonatorum is due to gonorrheal infection. The father has communicated the disease to an innocent mother, and she has been the unconscious medium of instilling the poison into the eyes of her babe.

We are glad to give and induce others to give toward the support of our hospitals; but when you physicians tell us that a very large percentage of the diseases treated in the hospitals result from venereal infection—for example, no less than 80 per cent of the gynecological surgery being made necessary by this same gonococcus, surgery which often saves life at the expense of barrenness and life-long invalidism—we feel that there should be preventive philanthropy as well as remedial charity. It is the facts which your profession has furnished that stir us to action. The best authorities tell us that sexual immorality on the part of the young men is well nigh universal; that any extra-marital indulgence is at the risk of infection; that as a matter of fact not less than 50 per cent and probably as many as 80 per cent of American men do become infected with venereal disease before they are 35 years of age; that in many cases these diseases are easily detectable; that by the Wassermann reactions and complement fixation tests even the latent cases almost certainly may be detected. Your medical authorities tell us, moreover, that many of these cases can be cured; that, therefore, only postponement and not absolute prohibition of marriage is necessary. Such facts and information as your profession is giving us are absolutely compelling. Still to content ourselves with remedial charity, and not to try to find and enforce some preventive measures would be worse than folly. It would be a crime against innocent women and unborn children and future society.

In no sense are we here to instruct or dictate to the medical

profession. In these matters we stand to you in the relation of learners and not of teachers. We are here rather to assure you of our deep interest in matters which so vitally concern us all, and to ask your counsel and co-operation in endeavoring to do the little that we can toward lessening these evils.

Already we have carried through a little campaign of education, in which we have had the hearty co-operation and invaluable assistance of your own Dr. Henry L. Sanford. This committee with Dr. Sanford have addressed the ministers' meetings of all the religious bodies composing the Federated Churches of Cleveland. Through them we have reached, at least in part, the 50,000 communicant members of these 200 churches. Fathers, who have concerned themselves about the financial and social position of those seeking to marry their daughters, are being made to realize that it is far more important to make sure of their physical soundness. The fact is being emphasized that marriage is not merely a matter of individual pleasure but of social welfare; that it is ignoble to seek the happiness only of the man and wife, and to forget the health of the children and the welfare of society.

But we are wondering if we cannot go a step further than this educational work. Some three years ago a Chicago clergyman, Dean Sumner, took the stand that he would solemnize the marriage of no persons who failed to furnish him a certificate from a reputable physician of freedom from venereal disease. The courageous act was itself of great educational value. It caught the attention of the country. In my judgment it did more than any one thing to loosen that avalanche of sentiment that has swept over the United States.

It is proposed that in Cleveland, not one clergyman, but the ministers of all these 200 churches take a similar stand. That is the specific proposal in which we seek the counsel and hope for the co-operation of the medical fraternity. Your attitude is felt to be of vital importance at this juncture. If it enables us to induce these 200 ministers with practical unanimity to demand assurance of freedom from venereal disease preliminary to marriage, it will mean for Cleveland a step in preventive philanthropy far in advance of any city in the world. The eyes of the world are said to be upon us because of our recent and radical advance in scientific charity. Why not have our city lead also in this preventive philanthropy?



# The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and  
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

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Original articles are accepted for publication by this Journal only with the distinct understanding that they are contributed solely to this Journal and will not be published elsewhere as original.

## EDITORIAL

### GENERAL EDUCATION BOARD PRESENTS LARGE ENDOWMENT TO THE MEDICAL SCHOOL OF JOHNS HOPKINS UNIVERSITY

Delivery has just been made at Baltimore of securities valued at \$1,500,000 presented by the General Educational Board to the Medical School of Johns Hopkins University. This gift is to be known as the William H. Welch Endowment for Clinical Education and Research.

The securities will be accepted on behalf of Johns Hopkins Medical School by Mr. R. Brent Keyser, Chairman of the Board of Trustees. The actual transfer of the principal of this fund to Johns Hopkins University signifies that an important and novel feature relating to the gift will have become an accomplished fact, namely, that the organization of the Medical School should be so arranged that the entire income from this fund could be utilized for the support of full-time teaching and research departments of medicine, surgery, and pediatrics, or diseases of children.

The express proposal made by the trustees of the Johns Hopkins University was that in reorganizing these three departments, professors and their assistants should hold their posts on the condition that they become salaried officials, and that they accept personally no fees whatever for any medical or surgical services which they might render.

The hospital wards and out-patient departments are to be under the control of the university medical or surgical teachers, but over and above their work in the public wards, the teachers are to be free to render any service required in the interest of humanity and science. They are to be free to see any patient they desire to see.

Patients, however, of the usual private type will pay a reasonable fee to the University, rather than to the professors personally. The time and the energy of the professors are to be fully protected, not only because their salary eliminates financial interest on their part, but because they are themselves to become sole judges as to whether or not particular cases shall or shall not command their personal attention.

In order that the time and energy of the professors thus safeguarded might be properly utilized under favorable conditions, the endowment was made large enough to provide adequate salaries to attract the ablest professors and also to provide them with assistants, well-equipped laboratories, books and other necessary facilities.

Simultaneously with the completion of the reorganization of the Johns Hopkins Medical School in accordance with this new plan, the University trustees have chosen Dr. Theodore C. Janeway, hitherto Professor of Medicine at Columbia University, to become Professor of Medicine of the Johns Hopkins Medical School, the position once held by Sir William Osler.



The chair of Surgery at Johns Hopkins, under the full-time arrangement, is to be occupied by Doctor William S. Halsted, most of whose surgical career has been passed in the Johns Hopkins Medical School, where, since the establishment of the Johns Hopkins Hospital, Doctor Halsted has been its Surgeon-in-Chief and Professor of Surgery.

The Chair of Pediatrics will be occupied by Doctor John Howland, who was called a year ago from the Professorship of Pediatrics at Washington University, St. Louis, and appointed physician in charge of the Harriet Lane Home for Invalid Children, this institution being the pediatric clinic of Johns Hopkins Medical School.

Johns Hopkins will become the first medical school to be placed upon the full-time basis in all departments. A grant of \$750,000 has been made to Washington University, St. Louis, and of \$500,000 to the Medical School of Yale University, upon an understanding that they also reorganize their work so as to put their clinical teaching upon a full-time basis.

The full-time scheme is a plan to ensure to hospital work and medical teaching the undivided energy of eminent scientists whose efforts might otherwise be distracted by the conflicting demands of private practice and clinical teaching.

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### **"The Short Road To Success"**

With the recent acknowledgement from McClure's Magazine (*J. A. M. A.*, June 13, 1914, p. 1912) that their article, "Painless Childbirth," was technically correct and read by Professor Krönig and Doctor Gauss, we feel tempted, along with others, to lament the changes coming over many of the German medical men of today. The old German ideals of deep study, of verity and of thoroughness—what, may we ask, is becoming of them? Much of the German medical literature of today is flooded with superficial studies and absurd deductions on this, that and the other subject intended to attract the public eye. At Berlin and Vienna are arranged elaborate post-graduate courses of from one to four weeks or longer, principally shorter. They are ground out to your order, in English or German, at so many "simoleons" per minute and at the end, a much embossed, much begilded diploma will be duly handed out to the participant. We are glad to say that this does not apply to the work of many

of the worthy professors in these great founts of medical knowledge, but sad to relate it is only too true of many of the courses offered. And what is even worse, Americans are the particular game and laughing stock of all too many of those Privat-dozenten, Ausserordentlich Professors, Geheimrats, et cetera. American medicine has not yet recovered from the shock of Friedmann's Golden Fraud and we are pained to learn that Professor Krönig would also add his name to those men desiring dollars rather than wisdom and the honor of their fellowworkers. We say this in spite of the recent denial from him as given in the Lancet Clinic. The German medical man has but to put a few titles before his name, appear in America and he feels himself called upon to burst out in public print to his heart's desire and his pockets overflowing—witness the example of a noted orthopedist a few years ago and just lately of an aurist. It is said that our remarkable antisyphilitic remedy, Salvarsan, costs nine marks (about two dollars) a kilogram to manufacture and is sold to the public at the *moderate* price of nine thousand marks (about two thousand dollars) per kilogram. True, it is also said, that all the profits are turned over to the Institute at Frankfort; but what, might we ask, would happen if the Rockefeller or Pasteur Institute should adopt such tactics with so valuable a remedy? Think of the hundreds and hundreds of dispensary patients denied this drug because of its prohibitive cost. Is it possible that the German medical man of today is, in his desire for material gain, forgetting the higher ideals of research, of teaching others and of healing the sick? There is much food for thought for his American colleagues and we deeply hope that medical Germany will take no chance to besmirch that high reputation of which she can be so justly proud.

H. N. C.



## DEPARTMENT OF THERAPEUTICS

Conducted by J. B. McGEE, M. D.

**Hypertension:** In the May number of the *American Journal of the Medical Sciences*, M. J. Lichty considers the question of hypertension with a protest against some ideas concerning it. He states that up to the present, men are no more of the same opinion about hypertension than they were years ago, in the study of other pathologic conditions. Not many years ago, a diseased ovary was almost routinely, and perhaps often unwisely subjected to operation; appendicitis was a subject causing vicious argument and bitter criticism; and many recognized heart lesions were either favored or hampered by aconite or digitalis. So at present many opinions about the etiology, prognosis, and treatment of hypertension are not conclusive either. Too frequently the mere mention of hypertension is considered a sequel of alcoholism or syphilis, and is coupled with the name of some drug considered a vaso dilator and a specific remedy. But not until one knows that vasodilators are no more of a specific in hypertension, than is digitalis in all forms of heart lesions, can be appreciate the cause of failure to restore the abnormal conditions. A specific treatment is out of the question where a specific cause is unknown. And the supposed causes of hypertension are about as numerous as the causes of headache, likewise the prognosis is about as uncertain as life itself; and the methods of treatment are and perhaps should be, widely different. How frequent are disappointments after the routine use of iodides and nitroglycerin, and how disappointing are the many brands of buttermilk for prevention of senility. The elixir of life and perpetual youth, still remain fables in spite of remarkable statements. As to treatment of hypertension, Dr. Lichty's experience is quite convincing that no routine method can be followed. The too frequent use of the sphygmomanometer, with a report of the pressure is bad policy, and positively harmful to many anxious patients. A little diplomacy or an evasive answer, with the assurance that it does not matter particularly is good psychotherapy. One thing is sure, where it is impossible to prevent accumulations of toxins, there must be constant eliminations, either through the organs of excretion or by withdrawal of a part of the blood containing them or they must be made more harmless with some form of medication. Elimination through the skin, kidneys, and bowels is a common procedure, the methods differing according to individual opinions. Removal of the cause is, of course, old advice and essential. Where there is an underlying specific disease which can be met by specific treatment, any other is of secondary consideration. He has used alkalies much, and with undoubted advantage. Rest, exercise and hygiene must be carefully directed and respected, and diet, of course, is no less important than medication, but is so often foolishly restricted. He concludes with the statement that happy is the patient who has secured mental peace through such philosophy as Bryant has put into the last paragraph of "Thanatopsis;" but pitiable is the other patient who fearing the end of life, and apprehensive of sudden death, is miserable to the last moment.

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**Acidosis:** Magnus Levy, in *Semaine Médicale* via *New York Medical Journal* for May 16th, points out the utility of hypodermic injections of a solution of sodium bicarbonate as a substitute for, or supplementary measure to intravenous injections of this or other alkalies in diabetic acidosis. Sterilization of a solution of sodium bicarbonate by ordinary means however is not practicable, as heating decomposes the bicarbonate with evolution of carbon dioxide, and the resulting solution is very apt to cause necrosis of tissue at the site of injection. The procedure advocated by Magnus Levy consists in adding to the bicarbonate

solution a small amount of phenolphthalein, and in passing through the (heated) fluid immediately before its hypodermic injection, a stream of carbon dioxid from a tank or Kipp generator. The phenolphthalein indicates by a pink color, the least trace of sodium carbonate present through decomposition of the bicarbonate, while the carbon dioxid leads to reconstitution of the bicarbonate, the pink color disappearing when this process is complete. A four per cent solution of sodium bicarbonate thus prepared was injected subcutaneously, in amounts as large as one litre, without the least necrosis or inflammation in any instance. The fluid is more irritating than normal saline, owing to its hypertonicity. Rosenthal, at the same meeting, reports results obtained in the treatment of cholera in Bulgaria, confirming the statements of Magnus Levy. Subcutaneous use of a five per cent solution of sodium bicarbonate, sterilized before injection, regularly causes tissue necrosis and infiltration, whereas, when powders of the bicarbonate were dissolved in previously sterilized salt solution and the solution then directly injected, little trouble was experienced. The alkaline injections are not of use in the acute stage of cholera, but are of use later, in the so-called "choleraic coma" which supervenes during apparent convalescence, and is manifested in a return of cyanosis, coldness of the extremities, positive venous pulse, infrequent and deep breathing, and imperfect articulation. Normal saline injections, so useful in the acute stage, are without effect in this condition, which seems to be essentially an intoxication by acids, Quineke and Hoffe-Seyler having found diminished blood alkalinity and increased urinary acidity in such a case of choleraic coma. By giving alkaline injections, sometimes intravenously, and at others subcutaneously, Rosenthal was able to save twelve out of twenty-four of the comatose cases, while before this measure had been employed, the mortality among these patients had been 100 per cent.

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**Camphor** *The Therapeutic Gazette* for May discusses camphor as an emergency remedy. More than twenty years ago this journal called the attention of the profession to the fact that so great a clinician as Graves, of Dublin, had strongly recommended the employment of camphor as a remedy to combat profound weakness or collapse. At that time this recommendation of Graves had been practically forgotten, and camphor was rarely employed for the purpose just named. With each succeeding year this use of a somewhat old-fashioned remedy has increased, and both surgeons and physicians are now in the habit of resorting to it with the view that it is a rapidly acting, diffusible stimulant, which can be used to pull a patient through a tight place. Some years ago, during the epidemic of cholera in Hamburg, Germany, it was found very efficient in combating the collapse of this profoundly exhausting disease. Within the last twelve months, Doctor Hare has again called attention to its value. Heard and Brooks reported negative results with even fifty grains given subcutaneously, but Hare has used it in one and two grain doses so frequently with good results that he cannot believe it devoid of power. Attention is again called to this matter by Cruikshank, who quotes Seibert, who seems to prove that the good results in pneumonia were largely due to the fact that the camphor aided in the destruction of the pneumococci in the blood stream. Cruikshank directs that a 30 per cent solution of camphor in oil or sesame be employed, and that as soon as possible after the initial chill, 10 c.c. of this solution, equal to about 36 grains of pure camphor, be injected to each 100 pounds of body weight, the dose being repeated every twelve hours, except in cases of bilateral pneumonia and severe toxemia, when it should be given every six to eight hours. The site selected for the injection should be the outer side of the thigh or the abdominal wall, the skin being sterilized with tincture of iodine and the injection made deeply enough to get below the subcutaneous fat, whereby all danger of abscess is avoided.



These heroic doses, which, if taken by the mouth, would heretofore have been considered as poisonous, seem to have been proved practically harmless. Seibert strenuously opposes the view that camphor is a toxic agent, and claims that he has given as much as 45 grains of camphor at a single dose hypodermically without any evil influences. He also points out that the doses heretofore employed were used as heart stimulants, and were not adequate to aid the body in combating infection, which is the true purpose of its use. He holds that the earlier the injections are made the better are the results, his view being that while camphor is not a direct germicide, it nevertheless renders the blood unsuitable for the multiplication of the pneumococcus, and he strongly advises that in cases of pneumococcic infection, which invade the meninges, the endocardium or the pleura, that 3 per cent of pure salicylic acid shall be added to the camphorated oil.

**The Auriculoventricular Bundle:** In the May number of the *Archives of Internal Medicine*, Edward Perkins Carter presents clinical observations on defective conduction in the branches of the auriculoventricular bundle. A report of twenty-two cases in which aberrant beats were obtained. As *aberrant* are grouped those heart beats which result as a direct sequence of impulses which arise in a supraventricular focus, but which reach the ventricle, either through an unusual route, or through normal but partially defective channels. In either case, the resulting electrocardiograms will show conspicuous differences from the normal, differences which depend either on a permanent organic lesion, or less commonly, on a temporary defect in conductivity. In the light of the accumulated observations, it has seemed possible to attempt to classify in greater detail the aberrant curves resulting from lesions of the branches of the auriculoventricular bundle. As regards the relation to auriculoventricular block, he states that deficiency in the conduction of the branches of the bundle has a close relation to a similar deficiency in the main stem of the auriculoventricular trunk. He also states that we have every reason to conclude from the evidence derived from all sources that inflammatory lesions and invasions of the heart by poisons may act in a more or less specific manner, picking out the special system of muscle fibers which unite the auricle and ventricle. The physiology and pathology of these tissues is largely a special physiology and pathology. His conclusions are: 1. In the presence of lesions involving the conductivity of the branches of the auriculoventricular bundle, a distinct and characteristic type of electrocardiogram is obtained. To the ventricular contractions on which these depend, the term *aberrant* may be applied. 2. This type of electrocardiogram is frequently associated with aortic valve disease. It is distinct from that of hypertrophy predominant in one ventricle. 3. Bundle-branch defects are usually accompanied by defects in the main trunk, suggesting that the junctional tissues as a whole have a special pathology. 4. The evidence in our possession is too slight to admit of any definite conclusion as to the relation between lesions of the bundle branches and occurrence of extrasystoles. 5. The electrocardiographic pictures of aberrant beats are probably of considerable prognostic importance.

**Electrotherapeutics:** A. D. Rockwell, in the *Medical Record* for May 30, publishes his observations based on forty-five years of electrotherapeutic work. In looking over the therapeutic part, it is easy to see how enthusiasm over apparent and immediate results interfered with accurate deductions in individual conditions of disease. As to the high frequency current, he contents himself with saying little and this along the broad general principle of its action. Chronic diseases afford the widest field for its activities. These currents of high frequency, high potential and amperage, which a few years ago would have been unbelievable, have developed new physical and

physiological phenomena, and greatly enlarged the sphere of electricity in medicine. Now as always the fundamental idea of the therapeutics of electricity is its nutritional influence. As an energizing principle, it exceeds all other physical agents, because of its more powerful and far-reaching effects on the circulation, the secretory and excretory processes of the body, and on absorption. It adds a definite amount of calories of heat to the body, in a way altogether new, and unthought of until recently. For the lowering of high blood-pressure and the relief of its many distressing symptoms the diathermic application of the high frequency current is invaluable. It is, of course, only in cases where the arterial changes are not too far advanced, that there is hope of permanent relief, but even then the effects are often ameliorative. He does not, however, attempt to enumerate individual pathological conditions in which it is of service. A knowledge of its physical and physiological activities should be a good guide to its therapeutic use. As to why electricity is not more extensively used in our hospitals and private institutions, he quotes a distinguished surgeon whom he accompanied to a hospital with which he was connected, to administer this agent. The apparatus was there, but he did not believe in "hospital electricity." The inference was plain. The internes to whom was left this method of treatment had no more exact training on the matter than those who generally administer electricity in our large private sanatoriums or the nurses often called upon. But that it may be made useful, he has exact knowledge.

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**Typhoid Vaccine:** *American Medicine* for April believes that the contraindications to typhoid vaccination will prevent its wide acceptance and confine its use to times and places of epidemics when and where it may be practically impossible to avoid typhoid. It is now reported that the vaccine incidentally causes a reduction of immunity to other organisms, particularly the pyogenic bacteria and tubercle bacilli. Suppurations and tuberculosis are quite common sequelae of typhoid fever, and though far less numerous after inoculations, are common enough to condemn the vaccine except in persons who are in the very best of health. No one can detect the early stages of tuberculosis, and the risk of lighting up an unrecognizable lesion is too great to ignore unless the danger of getting typhoid is much greater. We may all be tubercular, though perhaps in only one per cent or less are the lesions active enough to be disturbed by the vaccine, and even then recovery may be quite prompt unless the man is in bad surroundings, or exposed to fatigue or chilling. About one in five hundred or a thousand do not recover, but go on to recognizable incipency. The puzzling cases are those in whom the infection has not yet reached the lungs, but is still confined to the peribronchial glands. Any latent or chronic disease may be made worse by the vaccine, even carcinoma and diabetes. In the latter tuberculosis is quite common anyhow, and may be quickly fatal, if the vaccine is administered. Children have not yet developed full immunity to tuberculosis, and as they may be infected already, the vaccine is wholly out of the question for them. It is only less dangerous for college students. Women seem to take the vaccine badly, since many female nurses have bitterly complained of symptoms suggestive of glandular tuberculosis, and lasting several months after the vaccination. The action of the vaccine in latent tuberculosis is much the same as that of tuberculin, and many unsuspected cases have been thus diagnosed or traced to the vaccine. Doctor Parks, of the City Laboratories (New York), however, is reported to have said that as he had never heard of such cases, he proposed to go right along administering the vaccine.

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**Oxaluria:** In the May number of the *American Journal of Clinical Medicine*, B. G. R. Williams writes concerning some accuracies of practice, and as to oxaluria dolorosa states, that hematuria and renal distress (ureteral distress) may arise from the persistent passage of cer-



tain forms of crystals of calcium oxalate, through the upper urinary tracts and the formation of a calculus is not necessary for the occurrence of such hematuria and connected symptoms. Furthermore this explains many of the milder cases of nephralgia, as well as some of those protracted and severe ones which at operation reveal the kidneys apparently normal. He finds that a drug which may prove of great value in one instance will entirely fail us in the very next. He has seen oxaluria dolorosa relieved by hexamethylenamin (fermentations of unknown but acid nature in the upper urinary passages); he has witnessed its relief by excessive water drinking and diuretics (concentration of urine favoring precipitation of oxalate of calcium as sharp crystals); he has seen hydrochloric acid and diacid sodium phosphate perform miracles in the painful oxalurias, but not when the acidity was excessive. The dietetic treatment resolves itself into an attempt to reduce the intake of oxalates, or oxalate precursors, but the medical treatment aims at an effort to prevent their precipitation as insoluble acicular crystals in the upper urinary tract. In a dietetic way we must, if possible, reduce the oxalate intake, and reduce such food stuffs as are likely to give rise to oxalates by virtue of fermentation and otherwise. Prescribing of water should here be included, as most of these urines are very highly concentrated; and although we must remember that merely diluting a urine will not always relieve painful oxaluria, and other urinary findings must be considered. He states that several years ago he advised the use of diacid sodium phosphate, the only rational urinary acidifier. If necessary, acidify the urine by means of this salt, and then push hexamethylenamin and the results will be beautiful in those very cases where this drug seemed to be without effect. Another remedy of decided value in this condition is arbutin, the active principle of uva ursi.

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**Water Supply.**—The effects of filtration on a polluted water-supply in Cohoes, New York, are reported by A. J. McLaughlin, Washington, D. C. (*Journal A. M. A.*, May 16, 1914). Previous to 1911 Cohoes used the grossly polluted Mohawk river water without purification. In July, 1911, a gravity filter-plant was installed. Previous to that time the seasonal prevalence of both typhoid fever and enteritis of children was what might be expected under the existing conditions, that is, excessive rates prevailed in the winter and spring months. An enormous reduction of deaths from typhoid was shown in December, January and February and a very great reduction in March and April in the winter and spring of 1912-1913. The usual low rates in the summer months indicate that the Mohawk river had for some reason been much safer from July to October, hence the change to filtered water was not so noticeable during that period. Diarrhea and enteritis in children under two years is an important factor in the mortality statistics and a number of diseases are probably concerned, with various etiologies. One large portion of this mortality, the so-called summer diarrhea of children, seems to be independent of the water-supply. Where the water is unsafe the mortality is high from these causes and in children is apt to be high in the winter months. This was the case in Cohoes, where the enteritis mortality among children in the cold months ranged from 100 to 196 deaths per one hundred thousand population, and this was greatly reduced by the filtration. The rate for January fell below 75 per cent and for the succeeding months to June below 50. It must not be inferred that the filtration at Cohoes leaves nothing to be desired. Filter-plants are not infallible, fool-proof mechanisms. In dealing with grossly polluted water a safe affluent is obtained only at the price of eternal vigilance and efficiency at all times. An unreasonable burden may be put on a filter-plant and its installation does not justify an unrestricted discharge of sewage into the stream. Improving the character of the raw water reduces the load on the filter and furnishes an additional safeguard against unavoidable accidents that may occur.

## NEW AND NONOFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies, 1914, the following articles have been accepted for inclusion with "N. N. R." Those accepted during the current month are made prominent by the use of capitals:

H. M. Alexander & Co.:

Normal Horse Serum; Typhoid Vaccine, Immunizing.

Antiseptic Supply Co.:

Causticks; Caustick Applicators; Cupricsticks; Stypticks.

Arlington Chemical Co.: ARLCO UREASE.

Comar & Cie: ELECTRARGOL.

Farbwerke Hoechst Co.: Amphotropin; Erepton.

Fairchild Bros. & Foster: Trypsin.

Franco American Ferment Co.:

LACTOBACILLINE TABLETS; LACTOBACILLINE LIQUIDE; CULTURE A; LACTOBACILLINE LIQUIDE, CULTURE D; LACTOBACILLINE LIQUIDE, INFANT CULTURE; LACTOBACILLINE GLYCOGENE TABLETS; LACTOBACILLINE (GLYCOGENE LIQUIDE); LACTOBACILLINE MILK TABLETS; LACTOBACILLINE MILK FERMENT; LACTOBACILLINE SUSPENSION.

Hoffman-LaRoche Chemical Works:

Thiocol; Syrup Thiocol, Roche; Thiocol Tablets.

Hynson, Westcott & Co.:

Phenolsulphonephthalein, H. W. & Co.; Phenolsulphonephthalein Ampules, H. W. & Co.

Merck & Co.: Cerolin.

H. K. Mulford Co.:

Acne Serobacterin; Anti-Anthrax Serum, Mulford; Antistreptococcus Serum Scarlatina, Mulford; Coli Serobacterin; CULTURE OF BULGARIAN BACILLUS, MULFORD; Disinfectant Krelos, Mulford; Neisser Serobacterin; Pneumo Serobacterin; Salicylos; Scarlatina Strepto Serobacterin; Straphylo Serobacterin; Straphylo Acne Serobacterin; Strepto-Serobacterin; Typho-Serobacterin.

Riedel & Co.: New Bornyval.

Reinschild Chemical Co.: Phenolphthalein Agar.

E. R. Squibb & Sons:

Sodium Biphosphate, Squibb; Tetanus Antitoxin, Squibb; TETANUS ANTITOXIN, SQUIBB, 5,000 UNITS.

Wm. R. Hubbert: Hiphtheric Antitoxin, Hubbert.

Having been advised that Diphtheric Antitoxin, Hubbert, was no longer on the market the Council directed that it be omitted from future additions of New and Nonofficial Remedies.

Riedel & Co.: Hexalet.

At the request of the manufacturer, the name Hexal in New and Nonofficial Remedies has been changed to Hexalet.

Since publication of New and Nonofficial Remedies, 1914, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Sodium Biphosphate, Squibb.—This non-proprietary form of sodium acid phosphate has been accepted for inclusion with New and Non-



official Remedies. E. R. Squibb & Sons, New York (*Jour. A. M. A.*, May 2, 1914, p. 1401).

Normal Horse Serum with Chloroform as a Preservative.—Marketed in vials, each containing 50 c. c. H. M. Alexander & Co., Marietta, Pa.

Normal Horse Serum without Preservative.—Marketed in vials, each containing 50 c. c. H. M. Alexander & Co., Marietta, Pa. (*Jour. A. M. A.*, May 2, 1914, p. 1401).

Erepton.—A meat product consisting largely of the amino-acids produced by the digestion of meat. Erepton is said to be useful in cases in which it is necessary to substitute a perfectly digested food for the product of natural digestion in cases of gastric or intestinal indigestion and for the purpose of rectal alimentation. Farbwerke Hoechst Co., New York (*Jour. A. M. A.*, May 16, 1914, p. 1559).

Acne Serobacterin, Mulford.—This is a sensitized acne vaccine. H. K. Mulford Co., Philadelphia, Pa.

Coli Serobacterin, Mulford.—This is a sensitized coli vaccine. H. K. Mulford Co., Philadelphia, Pa.

Neisser Serobacterin, Mulford.—This is a sensitized gonococcic vaccine. H. K. Mulford Co., Philadelphia, Pa.

Pneumo Serobacterin, Mulford.—This is a sensitized pneumococcic vaccine. H. K. Mulford Co., Philadelphia, Pa.

Staphylo Acne Serobacterin, Mulford.—This is a sensitized staphylo acne vaccine. H. K. Mulford Co., Philadelphia, Pa. (*Jour. A. M. A.*, May 16, 1914, p. 1559.)

New Bornyval.—New bornyval is borneol isovaleryl glycolate, the isovaleryl glycolic acid ester of borneol. Being more resistant to the gastric fluids than bornyval, it passes the stomach unchanged and is said therefore to be less irritating than bornyval. Its properties are similar to those of bornyval and other valerian preparations. New bornyval is an almost tasteless and odorless liquid, insoluble in water. It is sold also in the form of Bornyval Pearls, each containing 4 minims of New Bornyval. Riedel & Co., New York (*Jour. A. M. A.*, May 23, 1914, p. 1637).

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**The New Dress of the *Annals of Surgery*.**—Owing to the continually increasing amount of material of value, offering for publication in the *Annals of Surgery*, the publishers have found it necessary, beginning with the July, 1914, issue, to enlarge the size of the page and also to somewhat reduce the size of type in which the original contributions have heretofore been printed. The enlarged size will also enable the publishers to make a better display of the illustrations which are such an important feature of the *Annals* contributions.

Thirty years ago, when the first number of the *Annals of Surgery* appeared, the size and style then shown suited admirably. At that time a single number contained only 96 pages. They have continued to increase each year until now the average number of pages to an issue is 164. Special issues have been published in which the number has been increases to over 300 pages, with the result that the manufacturing of the journal in the former style is not only extremely difficult but the finished product is unwieldy and cannot be read with the ease and comfort which is due a subscriber. In fact, it required constant pressure on the pages to keep them open.

We believe the new form overcomes this inconvenience and enables the publishers to give the reader more material and greater comfort while reading than it could have been possible for them to present in the former size.

The July issue has a choice collection of important articles of exceptional value to the general practitioner as well as the surgeon. It is a splendid example of the way this publication continues to set the pace in surgery.

## The Academy of Medicine of Cleveland

### ACADEMY MEETING

The one hundred and eleventh regular meeting of the Academy was held at 8 P. M., Friday, June 12, 1914, at the Cleveland Medical Library, the President, J. J. Thomas, in the chair.

Before taking up the regular program of the evening, an ordinance now before the City Council, to provide for the regulation and control of communicable diseases in Cleveland, was read by sections, discussed and passed upon by the Academy. The ruling was made by the President that any section not objected to should stand approved.

1. Section 4, making it incumbent on proprietors and managers of hotels, lodging houses, boarding houses and other places, to report the existence of communicable disease in their establishments within twelve hours after discovery, was approved.

N. Rosewater questioned the feasibility of this section.

C. E. Ford explained that it was largely educational in character.

2. Section 9, specifying what diseases shall be considered communicable, when the term is used in connection with human beings.

S. L. Bernstein objected to the tenor of the section for the reason that failure to comply with the provision for reporting all diseases included under it as communicable subjects the offender to a fine. He objected specifically to the reporting of scabies and venereal diseases, and asked whether it would be wise to include streptococcus sore throat in the list. He further asked whether, if the last mentioned disease were included, would the city laboratory make the diagnosis.

R. G. Perkins, in answer, said that the city laboratory already does so.

W. C. Tuckerman asked whether the diagnosis in influenza was made on the basis of clinical or laboratory findings.

R. G. Perkins explained that it was customary to make it on a clinical basis.

F. E. Bunts contended that the reporting of venereal diseases is neither practical nor proper. Placing of such diseases on the reportable list will have but one result, to make conscientious men liars.

E. O. Houck suggested that in connection with venereal diseases power should be given the division of health to segregate and quarantine. This especially, because in a large number of cases the patients will not take proper care of themselves.

W. I. LeFevre asked what the health department was going to do for the patient in such cases.

C. E. Ford, in answer to the question, said that in some cases the children would be excluded from school. The purpose of the code is solely for the benefit of the public. If the provisions of the code prevail, segregation of patients suffering with syphilis and gonorrhea will be practiced. In fact, even at present this is being done daily. With the completion of the new ward at city hospital, segregation will be practiced to a greater extent than ever before.

David Selman said that if a man is harboring venereal disease, he is a menace to society and such cases should be reported.

L. K. Baker suggested that consideration of the rest of the code go over until fall.

R. K. Updegraff said that the committee on public health of the Academy had been given power to act in assisting in drawing up the code. This appeared to have been a mistake, for the action taken by the committee did not coincide with the opinions of the members as expressed at the meeting.



W. E. Lower said that the code had been prepared for the protection of the public. The rationale of reporting transmissible diseases is admitted, but when applied to venereal diseases the plan is said to be impracticable. Reporting of these diseases is good, but there must be prophylaxis against their contraction, and once they have been contracted they must receive adequate treatment. The board of health should insist on prophylaxis for venereal diseases as much as for any others. Otherwise the reporting of venereal diseases might well be stricken from the provisions of the code. The people must have instruction in this regard. Attempts to talk down an instinct are impracticable. The exercise of prophylactic measures must be insisted upon absolutely.

A. W. Lueke asked the members of the board of health whether or not a corporation attorney in a damage suit would have access to a list of persons suffering from venereal diseases, if such were compiled. If so, and it were found that the plaintiff in such a case were suffering from syphilis, for example, this fact might be cited against him.

W. B. Laffer said that the frequency with which a wrong diagnosis of syphilis is made is sufficient grounds for barring it from the list of reportable diseases. If reported, when the diagnosis proved to be incorrect, it would work a hardship on the patient.

J. A. Jones said that he opposed the placing of even influenza on the list of reportable diseases, if the same were made compulsory with a fine for failure to comply. He declared that the most conscientious men would violate the ordinance.

N. Rosewater suggested that the remainder of the code be passed on by a committee of not less than ten men to be appointed. R. K. Updegraff and S. L. Bernstein objected, and the discussion of the code continued.

W. G. Stern moved the various diseases mentioned in the section should be read off by name and that objection to including them in the list be signified by rising. Carried.

3. Under Section 11, prohibiting persons suffering from diseases classed as communicable from mingling with the public, the Academy voted against the inclusion of scabies in the list.

On a motion of W. E. Lower, further discussion of the code was tabled to allow the regular program of the evening to be carried out.

The program follows:

**1. The Nature of Cutaneous Sensation, with an Instrument for its Measurement, By Walter Timme, Chief of Neurological Clinic, College of Physicians and Surgeons, New York.**

Ramon Y. Cajal, in his "Histoire du Systeme Nerveuse," states that the end organs in the skin are so arranged that a nervous "discharge" is produced by excitation due to mechanical irritation. Further, that each terminal end-organ is constructed to receive a certain quantity of stimulation after which ensues fatigue and cessation of reaction. In this view he is generally supported by histologists and physiologists. Recent experimentation by the speaker points to the fact that this view is incorrect in at least two particulars, namely, that nervous "discharge," properly so-called, is not produced, and secondly, that the terminal end-organ does not become fatigued with an ensuing cessation of reaction.

Suppose that we press a sharp-pointed pin against the skin and leave it in position for eight to ten seconds without varying the pressure, then, suddenly remove it. The sequence of events will be as follows: first, the sensation of the original prick; second, a period in which this sensation gradually disappears; next, a stage at which the sensation has disappeared and insensibility to the point of the pin has supervened, in spite of the fact that the pin is still in position. If, after the stage of insensibility has set in, we suddenly withdraw the pin, we are surprised to find that there is a recurrence, very slight to be sure, but none the less evi-

dent of the original sensation. Evidently then, if lessened stimulation restores the sensation, there can be no question of fatigue. So much for Cajal's theory of fatigue.

The other objection to the theory of Ramon Y. Cajal is relative to the production of a nervous "discharge." If the phenomenon is not a discharge, what may it be? May it not be that a constant current exists in the body and that the changes occurring are due to varying resistance introduced to the passage of the constant current through the end-organ?

What changes occur when the pin is pressed over or about one of the sensory end-organs? The semi-fluid intracapsular mass of the corpuscle allows the end-knobs to be pressed against each other and against the limiting membrane. This is synchronous with the first sensation of pricking felt. While the pressure continues and these parts of the end-organ maintain the same relative position, the sensation gradually dies out and insensibility gradually supervenes. The insensibility continues until the pin is suddenly removed, when the parts reassume their original position and the stimulus is again felt.

We can produce an analogous condition with galvanometer connected with the two poles of a constant current whose terminals are separated by water contact. With the terminals a fixed distance apart, the needle is quiet. A sudden approach of the one terminal to the other causes an oscillation of the needle which gradually comes to a stop, albeit the current still passes. The needle will remain quiet until the terminals are again separated, when a second oscillation of the needle takes place. In this experiment, our terminals are the limiting membrane and the end-knobs of the tactile corpuscle, respectively. The galvanometer is a central cell, the one wire represents the afferent nerve fiber, while the other one is a grounded return represented in the body perhaps by the excellent conductor, the blood stream, connected with the capsule of the corpuscle. The efficient cause of the sensation is, then, the diminution to the resistance to the passage of the current between the terminal knobs of the corpuscle on the one hand and the capsule of the corpuscle on the other, due to their closer approach.

If this theory be true, there must be throughout the body continuous streams of the current flowing, and it is the diminution or heightening of their resistances that produces effects. That the energy is not furnished by the cells of the cerebro-spinal system is easily proven by the fact that in the evolution of the nervous system the muscle acts before there is a nerve to innervate it. There are a number of other proofs. The origin must be peripheral. This is not far fetched, for active muscle produces currents as does also evaporation from the skin. In a number of animals experimented on by the speaker, the vagi to the stomach were tied off above the diaphragm, firmly enough to cause a pressure neuritis without entirely abolishing their conducting power. The systematic nerves were intact. The tying of the vagi increased the resistance to be overcome by the nerve current in this circuit. If the source of energy were developed in the stomach, we would expect to find as a result of this increased resistance through the vagi a greater flow through the sympathetic and, as a result, an increased activity in the sympathetic ganglion, with reciprocal increased activity in the stomach glands. As a matter of fact, the animals after three months showed a marked increase in the number of glands in the stomach, the increase in some cases totaling three to four million.

The probable theory for the explanation of cutaneous sensation is:

1. That it depends upon changes produced in a constant current, pre-existing in the end-organ;
2. These changes are brought about by varying resistance to the passage of this current through the end-organ; and,
3. The resistance may be made to vary by different means, the chief among which are, by pressure and temperature.



In the measurement of cutaneous sensation we designate the length of time taken for the pin prick sensation to disappear as the prelatent period. It varies according as the original pin prick was superficial or deep, being shorter in the former and longer in the latter case. It is likewise longer in hyper than in hyposensitive areas. Thus we can construct a formula

$$S = \frac{T}{D}$$

T represents the prelatent period in units of time; D, the depth to which the pin descends in units of distance. The instrument for measurement is based on this formula.

The instrument consists of a flat base perforated for the degrees of a pin, which descends by turning a milled head micrometer screw. For every turn of the screw the pin descends one twentieth part of a millimeter. The unit of time is fixed at one-fifth second. The time between the instant when the patient first feels pain, and when there is an abolition of sensation is determined, as also the depth to which the pin has been turned. When the resultant fraction is  $\frac{1}{2}$  to 1 it is designated normal, when below or above, hypo and hypersensitive, respectively.

J. E. Tuckerman asked, in discussion, whether, in use of this instrument, it was necessary for one to be provided with a chart of the normal sensitiveness of the skin in various areas of the body.

Walter Timme, in reply, explained that the standard in use of the instrument was comparison of the sensitiveness of the skin on one side of the patient's body with the other side.

C. W. Stone, in opening the discussion proper, said that he had tried detection of ordinary sensation with a common pin. By use of such a crude method, it was impossible to make equal pressure at different points, and thus sources of error in the findings creep in. If the instrument just described overcomes these disadvantages, it represents a distinct advance. Any means for the accurate detection of sensory changes is valuable in a variety of different cases.

W. B. Laffer commented on the value of the work done by the speaker of the evening, and said that the theory put forth was the most logical which has been advanced thus far.

H. H. Drysdale declared that the method outlined would put such examinations on a scientific basis. However, it is important to remember the possibility of skin infection which may occur in such types of examination, especially important in medico-legal cases.

Walter Timme, in closing, said that the use of the instrument was especially valuable in cases of hysteria. Also, in spinal cord tumors, pressing on the one side more than on the other, it is a valuable aid in diagnosis.

H. H. Drysdale moved that a vote of thanks be extended the speaker. Carried.

Dr. Timme's paper will appear in full in the August issue of this journal.

Papers to have been read by J. J. Thomas and N. W. Ingalls were postponed by their consent until resumption of the sessions of the Academy in the fall.

#### Discussion of Section 24 of Proposed Health Code.

Section 24 of the proposed code, providing for the taking of two release cultures, 24 hours apart, in diphtheria cases, said cultures to be taken by nurses in the employ of the division of health, eight days after notification, was read and placed before the Academy for approval.

W. B. Laffer expressed himself as opposed to the original form of this section as presented to city council.

W. G. Stern moved that the Academy instruct the committee in charge to report favorably on the section as revised.

C. E. Ford declared that the board of health was legally responsible for the maintenance of quarantine and that physicians are not, so that the taking of release cultures should be under control of the board. In not having had such a provision earlier, Cleveland is behind other cities.

J. E. Tuckerman said that if the physician is trusted to report diphtheria, he should be allowed to decide whether he wants to be relieved from the necessity of making release cultures. The section should stand as modified.

W. E. Lower declared that the general profession is negligent and that the board of health should be given widest latitude in such matters. It is no affront to the physician for the board to take the release cultures.

R. G. Perkins said that the taking of a proper smear from the throat required only moderate training. Release by cultures is the best method available, whatever its real value. Legislation of this sort has been tried elsewhere, and is worthy of a trial in Cleveland.

W. G. Stern said that the physician should attend such a case until the culture was negative, and that the matter should not be left in the hands of a nurse.

S. L. Bernstein moved that the memorandum of the changes as determined by the vote of the Academy be sent by the secretary to the proper committee of city council, as representing the opinion of the Academy.

#### **Report of Case of Sarcoma of the Stomach, By F. E. Bunts.**

The patient, a child, nine years old, was struck in the stomach by a playmate four weeks ago. Shortly afterward indigestion developed, and later a lump was palpable in the abdomen, in the region of the stomach. The case was operated for supposed sarcoma of the stomach, the diagnosis being on the great rapidity of growth.

Two-thirds of the stomach was resected and a posterior gastro-enterostomy done. Cross-examination of the tumor mass confirmed the diagnosis of sarcoma.

Sarcoma of the stomach is rare, especially in young children. The part played by the blow as an etiological factor, is given variable importance, by various authorities. The symptoms in the case were vomiting, obstruction of the stomach, rapid wasting away of the patient, although there was no anaemia, hemorrhage or pain. Statistics of such cases show little recurrence after operation.

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### **COUNCIL MEETING**

At a meeting of the Council of the Academy of Medicine, held Wednesday, June 10, 1914, at the Bismarck, the following members were present, the President, J. J. Thomas, in the chair: Doctors Ford, Lueke, Yarian, Houck, Perkins, Updegraff, Selzer, Weir, Birge and Tuckerman, and by invitation, Doctor Moorehouse.

The minutes of the last meeting were read and approved.

On motion, the name of the following applicant for Associate Membership in the Veterinary Section was ordered published: D. W. Shumaker, D. V. M., Canal Dover, Ohio.

On motion, J. H. Hewett, formerly of Dallas, Texas, was transferred to active membership.

The secretary read the report of the delegates to the Ohio State Medical Association. The report was accepted and placed on file.

The secretary read the report of the committee which visited City Hospital. The members who were present at that time were Doctors Lueke, Updegraff, Yarian, Storey, Kopfstein, Merriam, Walter Stern,



Moorehouse and J. E. Tuckerman. The report was accepted and ordered filed.

A communication from Doctor B. Peskind, questioning the advisability of having members of the Committee on Public Health less intimately connected with public service and more largely composed of members in general practice, was read. On motion, the communication was placed on file.

After full discussion, the following motion was adopted: That it be a rule of the Council that standing committees be denied power to act without first reporting to the Council.

On motion, the chairman of the Committee on Public Health was asked to present the report of his committee on Part 3, Section 24, of the Public Health Code, dealing with communicable diseases, at the next meeting of the Academy.

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#### To the Academy of Medicine of Cleveland:—

Your committee appointed to inspect the City Hospital, having visited the institution June 2, 1914, desires to express its appreciation of the value of the hospital to the City of Cleveland, of the need of the institution for new buildings, and of the evident desire of those responsible for its administration to make of it an institution of highest grade.

The necessity for an increased number of beds and increased facilities for clinical work at the City Hospital is to be found in the facts:

That the number of hospital beds for the care of cases admissible to any general hospital in the city fall very much short of the present and ever-increasing needs of this growing city, and

That the City Hospital is the only institution that also provides for the care of cases of tuberculosis, syphilis and contagious disease, the care of which is essential as a safeguard to public health, but which no other hospital does or can be expected to admit as in-patients.

We further commend the fullest use of the hospital as a teaching institution, it having been demonstrated that such use is to the best advantage of those who seek its help in sickness. We desire to suggest to those responsible for the administration of this institution that it is the services of the staff of a hospital which makes it permissible to apply the title of "hospital" to buildings erected for the admission of the sick.

While aware that such a staff receives a definite, though intangible, return for the services it renders, we, who have no connection with this institution, feel that no return is received commensurate with the services rendered unless provision be made to facilitate the tasks of the resident and visiting staffs in their medical and surgical work.

Further adequate recognition should be given for faithful and self-sacrificing service. To recognize past faithfulness of physicians in their services to hospitals and dispensaries would be setting a new but a desirable precedent in Cleveland.

The problems which confront an architect in planning a hospital are extremely technical and we were somewhat surprised to learn that the architects of the new buildings being erected for the very special uses of a hospital have not been afforded the benefit of the advice of a consulting architect, on hospital construction, of whom there are several in this country. In the past hospitals erected without such supervision have, too frequently, been found when put to use to be lacking in proper and convenient facilities for the work intended. We trust that it may not now be too late to secure such advice as we suggest, in the hope of avoiding errors in construction or arrangement.

We wish finally to express our appreciation of the invitation offered us to visit the hospital again individually or collectively whenever we see fit, and we thank the authorities in charge for the pains which they took

to show us the essential details of the new buildings under construction, and to acquaint us with the condition of the old buildings which so clearly make evident the need of the new.

Respectfully submitted,

A. W. Lueke,  
R. K. Updegraff,  
N. C. Yarian,  
Alvin S. Storey,  
F. T. Kopfstein,  
Walter H. Merriam,  
Walter G. Stern,  
G. W. Moorehouse,  
S. L. Bernstein,  
J. E. Tuckerman,  
The Committee.

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**Meckel's Diverticulum.**—J. P. Crozer Griffith, Philadelphia (*Journal A. M. A.*, May 23, 1914), reports a case of ulcerative inflammation of Meckel's diverticulum in which the combination of clinical manifestations and pathologic lesions was very unusual, unexpected and misleading. Persistent slight hemorrhage from the bowel and severe anemia was present, accompanied by nephritis. The inflammation also extended to the serous layer of the diverticulum, producing a secondary, purulent peritonitis, localized by the matting of the coils of the ileum around the seat of supuration. The origin and bearing of the nephritis was uncertain. He cites literature on Meckel's diverticulum and reports its occurrence with the types most frequently found.

1. Strangulation of the intestine by the diverticulum or its remains, usually attached to the umbilicus or to some part of the intestine, mesentery or other region. The diverticulum may be either in the form of a fibrous, cord-like remainder of the organ, or may have its lumen still present, through all or a part of its extent. In either case the ileum becomes constricted and strangulated.

2. The persistence of Meckel's diverticulum with an opening at the umbilicus, which is unusual, and the subjects are usually males.
3. Formation of a cystic tumor in which the diverticulum becomes obliterated at both ends.

4. With concretions of various sizes present in the diverticulum.

5. Superinvolution of the diverticulum which narrows the intestine and continues the obliterative process to the ileum.

6. With stenosis of the ileum caused by traction of the diverticulum attached at its distal end.

7. Invagination of the diverticulum, which is often followed by an ileocecal intussusception.

8. Volvulus of the diverticulum, or of the ileum, which occurs most frequently if the distal extremity of the diverticulum is attached.

9. Hernia of the diverticulum is seen occasionally.

10. Inflammation of the diverticulum, which is one of the most infrequent abdominal diseases. In secondary diverticulitis other lesions develop first in the primary diverticulitis a distinction is to be made between the acute and chronic cases and the relationship of diverticulitis to obstruction of the bowel. The causes of diverticulitis are obscure, though it is probably based on infection. Previous digestive disturbances and trauma have some bearing. Diverticulitis is analogous to and may coexist with appendicitis; all grades of inflammation and symptoms may exist. The condition has never been recognized during life, hence the frequency of recurrence is unknown. Spontaneous recovery may take place, but the only practical treatment is operative. Whenever the diverticulum is discovered during operative procedures it should be removed, as it always constitutes a menace.



## BOOK REVIEWS

**Pyorrhea Alveolaris**—By Friedrich Hecker, B. Sc., D. D. S., A. M., M. D., Member of the Academy of Science of St. Louis, Mo.; Consultant at Bell Memorial Hospital of the School of Medicine, University of Kansas, Rosedale, Kansas; Consultant at St. Margaret's Hospital, Kansas City, Kansas. C. V. Mosby Company, St. Louis, 1913.

The author is of the opinion that pyorrhea alveolaris is essentially a constitutional disorder and not a local process as held by many writers. He divides the condition into eleven different varieties, characterizing each as a separate disease. It is a little difficult to see the difference between some of them. The term pyorrhea is frequently used by medical men in the sense of oral sepsis—this is due to dental caries and uncleanliness and is commonly considered by them as the cause rather than the result of systemic disorders. The dentist means by true pyorrhea a condition persisting and recurring in spite of the most painstaking cleanliness and probably the result rather than the cause of constitutional disease. The other chapters deal with elementary bacteriological technique, especially from the dental standpoint. There are also short chapters on autogenous vaccines and prophylactic instrumentation in pyorrhea.

V. C. R.

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**A Synopsis of Medical Treatment**.—By George Cheever Shattuck, M. D., Assistant Physician to the Massachusetts General Hospital. Second Edition, Revised and Enlarged. Price, \$1.25. W. M. Leonard, Boston, 1914.

This small volume of 96 pages is a compact manual of treatment, directions for routine care of the more common medical conditions being enumerated serially and in the best form for hasty reference. It is a true synopsis, but touches practical points quite comprehensively. The section on typhoid fever is a type. Under the general headings of Medication, Hydrotherapy, Diet, Nursing, etc., six or eight specific directions are detailed especially applicable to nurses' instructions. The selection of therapeutic measures and drugs appeals to one as rational and authoritative. The essential points in the practical use of salvarsan and neosalvarsan are given in the chapter on "Important Drugs."

V. C. R.

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**Diagnosis in the Office and at the Bedside.—The Use of Symptoms and Physical Signs in the Diagnosis of Diseases**.—By Hobart Amory Hare, M. D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College of Philadelphia. New (7th) edition, thoroughly revised and rewritten. Octavo, 547 pages, with 164 engravings and 10 full-page plates. Cloth, \$4.00 net. Lea & Febiger, Philadelphia and New York, 1914.

The book is written on the plan that is actually followed in practice—namely, the upbuilding of a diagnosis by analysis and grouping of the symptoms. The author emphasizes the futility of attempting to establish certain single symptoms as pathognomonic and shows the advantage of getting all the data before drawing conclusions. Less space is given to the details of palpitation and percussion than in most works on physical diagnosis. Laboratory diagnosis is omitted entirely, the author stating in the preface that this subject is now so highly developed that special volumes are necessary. Under the heading of Chronic Hypotension, the unqualified statement is made that in Exophthalmic Goiter the thyroid secretion acts as a powerful sedative—a statement rather in advance of present thyroid pathology. The book deals, however, mostly with the complete interpretation and grouping of symptoms carefully observed and has great practical value in diagnosis.

V. C. R.

The Pathogenesis of Salvarsan—Fatalities—By Sanitäts-Rat, Doctor Wilhelm Wechsellmann, Directing Physician of the Dermatological Department, Rudolph Virchow Hospital, Berlin. Translated by Clarence Martin, M. D. The Fleming-Smith Company, St. Louis, Mo. Price, \$1.50.

A volume of 143 pages, 8 vo. Although much has been written on Ehrlich's discovery of Salvarsan, yet all who have had extensive experience with this synthetical drug feel that while much is known still the last word on the subject has not yet been spoken.

In contradistinction to many of the leading Syphilographers, Wechsellmann advocates the exclusive use of Salvarsan in the treatment of syphilis. The fatalities following the use of this drug, it is claimed, are mainly due to the injurious effects on the kidneys of the long-continued use of mercury. In this enfeebled or defective state when salvarsan is given an acute, often fatal, inflammation may ensue. The present volume is an analysis of the fatalities reported in literature and comments on the exact cause of death. A close study of these cases is to be commended by all who expect to employ the drug in their work, and this collection presents the subject in a brief form and systematically arranged.

The translator has performed his labor well and has given to English reading physicians an opportunity to become familiar with the modern teaching of this German authority on the subject of which he treats.

W. T. C.

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Skin and Venereal Diseases—Miscellaneous Topics.—Edited by W. L. Baum, M. D., and Harold N. Moyer, M. D. Practical Medicine Series, 1913. The Year Book Publishers, Chicago. Vol. IX. Price, \$1.35.

This is an octavo volume of 228 pages, consisting of abstracts from journals on the subjects indicated above. Numerous photographic reproductions illustrate the text. The first article, by W. P. Cunningham, taken from the *New York Medical Journal*, Sept. 6, 1913, on "The Skin as an Index to Diseases," in which the various internal disorders which influence the skin are treated of.

"Internal Etiology of Dermatoses," by A. S. Clark, M. D. This writer divides the internal causes of cutaneous disturbances into: toxic, neurotic, circulatory, eliminative, secretory and sexual. Doctor G. M. MacKee contributes an article on "External Causes of Dermatoses," such as the animal and vegetable parasites, etc. Articles on such inveterate affections as "The Treatment of Leg Ulcers," by Williams, in the *British Medical Journal*, October 18, 1913, and "Seborrhoeic Keratosis," by Culver, *Journal Cutaneous Diseases*, October, 1912, give practical information which cannot but be of use to general practitioners of medicine and others interested in dermatological work. Twenty-eight pages are given to syphilis, selecting numerous articles of a practical nature, including modern methods of treatment and laboratory helps to diagnosis. Part I ends with articles on Genito Urinary medicine. The second part of the volume is devoted to miscellaneous articles more or less related to the foregoing, such as Medical Economics, Sociology and Eugenics.

On the whole the selections are happily made and much useful information and many practical suggestions are given. These collected in a convenient form are more accessible than among the files of a medical library, where they would be in danger of being overlooked. The editors have given a definite service in which their thorough familiarity with the subjects cited is evident throughout the volume. It is a time-saving collection of the leading articles of the year, especially of a utilitarian nature and as such may be highly commended.

W. T. C.

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Marriage and Genetics—Laws of Human Breeding—Applied Eugenics—8 vo., 183 pages—by Charles A. L. Reed, M. D. The Galton Press, Publishers, Cincinnati, Ohio. Price, \$1.00.

It is refreshing to read a book written by an expert on the subject



of Eugenics. The theme must be handled with knowledge and discretion. Already it has attracted an undesirable element, the class of men who are called "experts" by the so-called courts of justice. There is nothing of this in Doctor Reed's book, but, on the contrary, we have a book written by a well-known surgeon, who has given from his extensive experience as a gynaecologist an authoritative work on Eugenics.

The book is divided into fourteen chapters. Chapter I treats of life and the laws of its perpetuation as applied to the human subject. Chapter II—continuity of human life—taking up the principles of heredity. Chapter III deals with sexual efficiency, entering into a discussion of some of the diseases which interfere with the normal course of sexual life. Chapter IV—character units and treating of transmitted traits, laws of variations and their application. Chapter V—inheritance, relating especially to physical, mental and moral traits. Chapter VI—heredity—dealing especially with the subject of evolution and duration of Mendel's law of heredity, and its application to selective human breeding. Chapter VII—the human Norm—regression and progression; application of Galton's law of the mean or average. Chapter VIII—growth and reproduction—speaking especially of Carpenter's law. Chapter IX—food and fecundity—dealing with Spencer's law of the relation of Genesis to Nutrition and Expenditure. Chapter X—natural selection—survival of the fittest and other consideration of Darwin's work. Chapter XI—social diseases—race suicide, gonorrhea, syphilis and their sequelae. Chapter XII—applied eugenics—medical examinations to determine the physically fit are discussed with conservatism. Chapters XIII and XIV give a summary of the preceeding work with comments and comparisons.

The whole subject of Eugenics is one of difficulty, and to cope with effectively both special knowledge and unusual tact are requisite. This happy combination is found in this little volume, which cannot fail to elevate a subject in great danger of falling into disrepute by many well-intentioned persons possessed of a superficial understanding of a subject they feel called on to teach.

It is a book that will appeal to the intelligent, educated part of the community rather than as a popular guide to a large class of persons most in need of observing the precepts of which it treats. W. T. C.

## ACKNOWLEDGEMENTS

**Progressive Medicine.**—A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics, *Materia Medica* and *Diagnosis* in the Jefferson Medical College, Philadelphia; and by Leighton F. Appleman, M. D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. June 1, 1914. Volume XVI, No. 2, whole number 62. Price \$6.00 per annum. Lea & Febiger, Philadelphia and New York.

**Practical Therapeutics.**—Including *Materia Medica* and Prescription Writing, with a Description of the Most Important New and Non-official Remedies Passed Upon by the Council on Pharmacy and Chemistry of the American Medical Association. By Daniel M. Hoyt, M. D., Formerly Instructor in Therapeutics, University of Pennsylvania; Fellow of the College of Physicians; Assistant Physician to the Philadelphia General Hospital. Second Edition Revised and Rewritten. C. V. Mosby, St. Louis, 1914. Price, \$5.00.

**The Practical Medicine Series, 1914.**—Comprising Ten Volumes of the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of Charles L. Mix, A. M., M. D., Professor of Physical Diagnosis in the Northwestern University Medical School, and Robert T. Vaughan, Ph. B., M. D. Volume I, General Medicine, Edited by Frank Billings, M. S., M. D., Head of the Medical Department and

Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, A. M., M. D. Professor of Medicine, Illinois Post-Graduate Medical School. The Year Book Publishers, Chicago. Price of Series of ten volumes, \$10.00. Price of this volume, \$1.50.

**The Practical Medicine Series.**—Volume II. General Surgery, Edited by John B. Murphy, A. M., M. D., LL. D., F. R. C. S. England (Hon.), F. A. C. S., President of the International Surgical Congress, London; Professor of Surgery in the Northwestern University; Attending Surgeon and Chief of Staff of Mercy Hospital and Columbus Hospital; Consulting Surgeon to Cook County Hospital and Alexian Brothers Hospital, Chicago. Series 1914. The Year Book Publishers, Chicago. Price, \$2.00.

**The Practical Medicine Series.**—Volume III. The Eye, Ear, Nose and Throat. Edited by Casey A. Wood, C. M., M. D., D. C. L.; Albert H. Andrews, M. D., and William L. Ballenger, M. D. Series 1914. The Year Book Publishers, Chicago. Price, \$1.50.

**Medical and Surgical Reports of the Episcopal Hospital of the Protestant Episcopal Church in Philadelphia.**—Volume II. Press of Wm. J. Dorman, Philadelphia, 1914.

**The Clinical History In Outline.**—By Paul G. Woolley, S. B., M. D., Professor of Pathology, College of Medicine, University of Cincinnati; Director of Laboratories, Cincinnati General Hospital, Cincinnati, Ohio. C. V. Mosby Company, St. Louis, 1914.

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## MEDICAL NEWS

Doctor H. J. Lee has retired from the practice of medicine in Cleveland and will make his future residence in Brattleboro, Vermont.

**Cleveland Physicians Honored.**—At the annual meeting of the American Urological Association, held in Philadelphia, June 18 and 19, the following officers were elected: President, Doctor William E. Lower, Cleveland, Ohio; Secretary, Doctor Henry L. Sanford, Cleveland, Ohio; Treasurer, Doctor James A. Gradner, Buffalo, New York. The 1915 meeting will be held in Baltimore.

**Stark County Medical Society.**—The 143rd regular meeting of the Stark County Medical Society was held in Canton, July 21. The following program was of great interest to those in attendance: 1. The Physician and Public Morals, by Doctor Dan S. Gardner, Massillon, Ohio. 2. Recent Advances in Our Knowledge of Infectious Diseases, by Doctor E. F. McCampbell, Secretary State Board of Health, Columbus, Ohio.

**The State Civil Service Commission of Ohio** has ordered special non-assembled competitive examinations, Bureau of Research, State Board of Administration.

1. Psychologist—Psychological examination and grading of juvenile commitments to the Ohio Board of Administration. Experience and thesis. (One to be appointed.)

2. Laboratory Worker, experienced in pathological research, experience and thesis. (One to be appointed.)

3. Diagnostician.—Experience and thesis. (One to be appointed.)

4. Field Workers, experienced in the investigation of hereditary and environmental traits, and the collection of family histories and statistics. Experience and thesis. (Three to be appointed.)

5. Laboratory Workers, experienced in giving the Binet-Simon and other similar mental tests. Experience and thesis. (Two to be appointed.)

Salaries to be fixed by Board of Administration.



The State Civil Service Commission has waived the provisions of Rule 4 as they relate to applicants having a legal residence in the State, so that applicants for this special non-assembled competitive examination are not required to be residents of Ohio.

Application blanks may be secured from the State Civil Service Commission, Columbus, Ohio. Questions will be sent to applicants and answers mailed to this office. All final papers must be in the hands of the State Civil Service Commission on or before August 4 at 5:30 p. m.

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**Studies in Prostatic Obstruction and Vesical Atony.**—In a paper by Doctor Bransford Lewis, of St. Louis, with the above title, read before the American Urological Association, June 18th, 1914, at Philadelphia, the following were the conclusions:

1. The exact causation of urinary retention should be sought for in all cases before adopting a plan for treatment.

2. It should always be found in one of two factors, viz.: (a) physical obstruction of some kind, or (b) disturbance of the nervous mechanism controlling urination.

3. There is no such thing as "unaccountable" atony or urinary retention; such a term represents an incomplete diagnosis.

4. There is no such thing as "incurable atony" except when it is caused by some nerve-degenerative process (tabes, etc.) that precludes restoration of the expulsive power; and it is unjustifiable in the most of these cases.

5. Even when the retention and atony are caused by nerve degeneration much can be done in the way of treatment, both locally and internally, to facilitate urination and improve the conditions prevailing.

6. Where the cause is a physical obstruction, its complete removal paves the way to restoration of the expulsive power.

7. The most frequent and important of the obscure, unrecognized causes of obstruction are: (a) ill-defined contracture at the vesical neck (demonstrable sometimes only by palpation through the opened bladder or urethra); (b) unrecognized syphilis, acquired or hereditary, affecting the spinal centers.

8. Such conditions are by no means confined to adult life, and should be looked for and recognized at any age, from infancy up; diagnosed and treated in accordance with the refined diagnosis always demanded by cases of urinary obstruction.

9. Syphilis is a surprisingly frequent cause of such conditions. Lack of syphilitic history or general nerve symptoms, in obscure cases, should not preclude investigation by means of a Wassermann blood-test; and if this proves doubtful, a Wassermann test of the spinal fluid should be made, as well.

10. The supreme value of early recognition and differentiation of such cases appears in the opportunity it offers of affording appropriate treatment before the case has assumed the hopeless phases that preclude reclamation or benefit.

A final, but too-late recognition is but poor solace for a lifetime of suffering due to delinquencies in diagnosis.

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**Syphilis as a Public Health Question.**—M. J. Nichols, Washington, D. C. (*Journal A. M. A.*, May 16, 1914), after remarking on the advances made in our knowledge of syphilis during the last decade, which he reviews, says that they have come not from the clinic, but from the laboriously controlling this disease and popular interest in the matter is increasing. The extreme medical position is, of course, that syphilis should be attacked in the same way as other infectious diseases, namely, by detection and removal of the sources of infection, early diagnosis, isolation,

prompt treatment and various methods of protection. This position, however, is attacked by many social reformers. They say that "the medical program is a failure in practice and that it tends to legalize immorality." In answer to this first objection, Nichols says that, from the purely scientific view, we are in a good position to control syphilis, provided we could carry out preventive measures thoroughly. Syphilis, however, is on a different standing from other chief infections. "The endemic center of the disease is . . . in the irregular sexual life of the race and a direct medical attack on the social side of the problem is out of the question." It will be a long day before a sanitary map of the town will be made with syphilis cases pointed out and placards used for infected houses. The subject of syphilis in its relation to public health is not purely a medical one or merely a question of education and reform. We must find out what we can do as physicians and do the best we can. Nichols gives a number of statistics as regards the prevalence of the disease. Most of these are from hospitals, but the research is now being extended into the general population. Even if we can obtain an accurate knowledge of the prevalence of syphilis in a special class, as, for example, in the Army, we cannot fully solve the problem by repressive measures, but a great deal can be done, and as regards the question of treatment, city governments and hospitals can do a great deal. The position of most hospitals toward syphilis needs revision. Most hospitals refuse to admit syphilitics, but at the same time they admit the latent cases and other incurable conditions due to existing syphilis, thus throwing away their chances for doing actual good. With our present sure methods of diagnosis and surer specific remedies a great deal of good can be done by properly directed effort. As regards a standard of cure, he gives that used in the Army, where they have unusual opportunities for following up cases. The Army standard is as follows: "One year without treatment, without any suspicious clinical symptoms, with several negative Wassermann reactions and no positive ones, and at the end of the year a negative provocative Wassermann reaction or negative luetin test." These requirements fulfilled, the case is considered closed. As yet about one hundred cases have met the conditions out of several thousand altogether, but the proportion is increasing. The follow-up system used in the tuberculosis campaign and in social service and the establishment of night clinics may aid in handling the situation among civilians. In prophylaxis some hygienic measures are of slight avail, such as the disuse of the common towel and drinking-cup and a campaign against promiscuous kissing. Medical students are in need of instructions in regard to prevention, as it is a special risk to the medical profession. A more effective measure is along the line of negative eugenics, and that is, the prevention of infection of families by marriage. The standard for marriage, in Nichols' opinion, should be the same as that mentioned above as used in the Army. The precise time and place for preventive measures is after contact with infected individuals with the calomel treatment of Metchnikoff. Nichols summarizes his views as follows: "1. The application of Koch's etiologic method for the study of infectious diseases, to syphilis, has greatly increased our knowledge of the disease during the last ten years. 2. A strictly medical campaign against syphilis is neither practicable nor desirable. A modified medical campaign both practical and necessary. 3. The prevalence of the disease is still largely a matter of conjecture, and information on this point is to be obtained largely by Wassermann reaction surveys, carried out by municipal and hospital laboratories. 4. The most hopeful outcome of all the recent work on syphilis is the possibility of early diagnosis and radical cure. This possibility is still largely unrealized on account of lack of facilities in dispensaries and hospitals. 5. Our ideas about the efficiency of treatment and about a standard of cure are much more definite than heretofore, as a result of the application of etiologic tests. 6. Syphilis in most cases is a preventable disease, and this fact is an additional warrant for penalizing those who contract it."



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## THE NATURE OF CUTANEOUS SENSATION, WITH AN INSTRUMENT FOR ITS MEASUREMENT

By WALTER TIMME, M.D., Member of New York Neurological Society, Consulting Neurologist, New Rochelle Hospital, Assistant Physician, New York Neurological Institute, Chief of Neurological Clinic, Vanderbilt Clinic, New York.

Ramon y Cajal, in his "Histoire du Systeme Nerveuse," states that nervous end-organs in the skin are so arranged that a nervous discharge is produced by the excitation due to mechanical irritation. Further, that each terminal organ is constructed to receive a certain quantity of stimulation after which ensues fatigue and cessation of reaction. In this view he is generally supported by histologists and physiologists. I believe that this view can be proved incorrect in at least two particulars, namely, first, that a nervous discharge properly so-called is not *produced* and secondly, that the terminal organ does not become fatigued with an ensuing cessation of reaction.

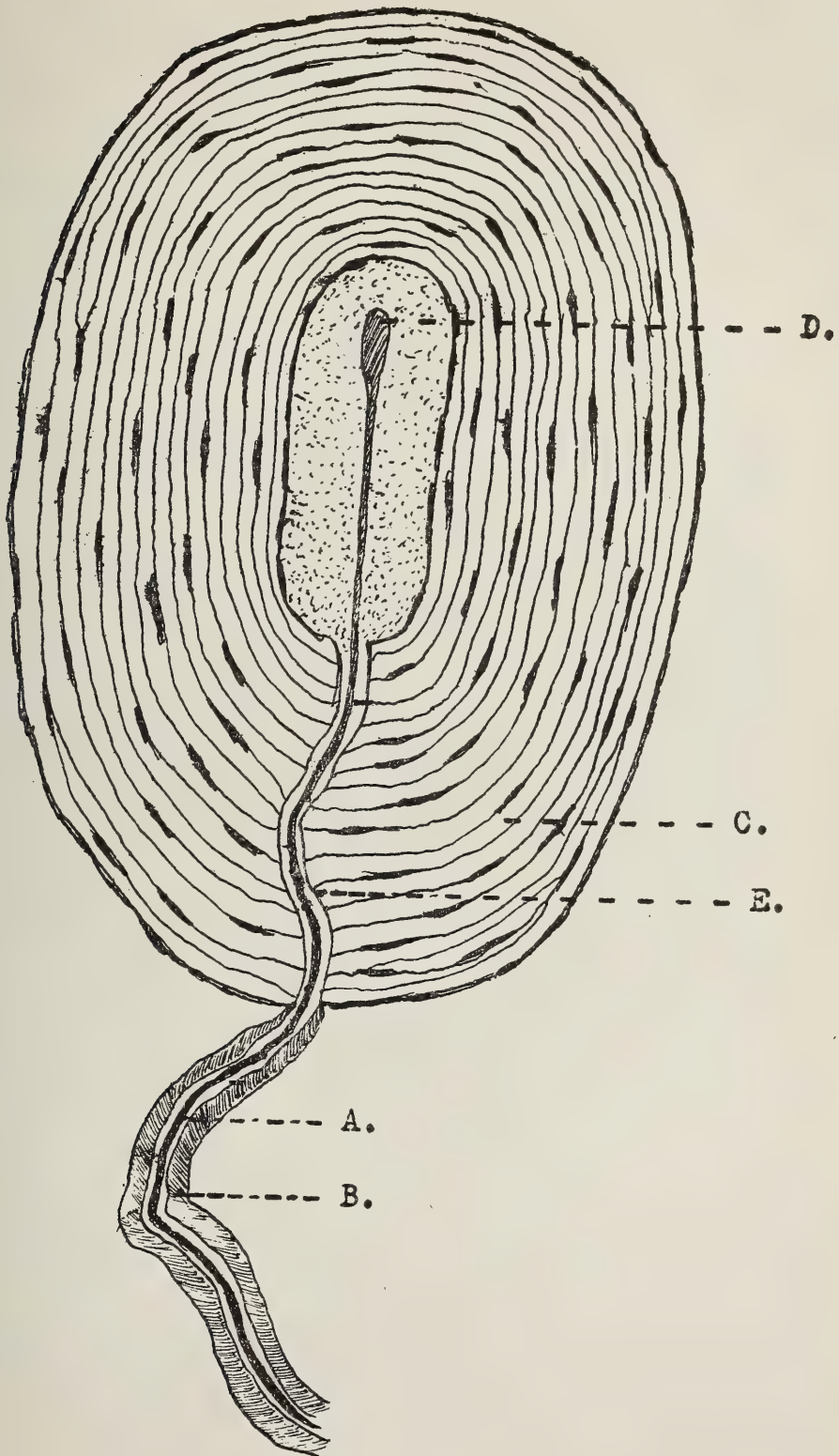
If we will note carefully the phenomena attendant upon a very simple experiment upon such nervous end-organs in the skin, and interpret them correctly, I think there will be no difficulty in proving these objections to be valid. The experiment is as follows: Press a sharp pointed object—a pin—against the skin, and leave it in its position without increasing or decreasing the pressure for eight or ten seconds; then suddenly remove it. I think you will agree with me that the sequence of events is as follows: First, the sensation of the original prick; next, a period during which this sensation gradually disappears; then, a stage at which the sensation has disappeared, and insensibility to the point of the pin supervenes, in spite of the fact that the pin is still in its position. Superficially regarded, this stage of quiescence might be taken as the point of fatigue, beyond which a greater irritation would be necessary to produce an effect; and this explanation has seemed to satisfy. But let us continue the experiment. If, after the period of insensibility has set in, we suddenly withdraw the pin, we are surprised to find a recur-

rence, very slight it is true, but none the less a fact—a recurrence of the original sensation. That is, a cessation of the irritation reproduced the feeling. Evidently then, when a lessened stimulation restores the sensation there can be no question of fatigue. Again, if in the experiment we press fairly heavily against the pin, the time elapsing before the sensation is lost can be measured in seconds, five or eight or ten, indeed; whereas in pressing lightly the sensation vanishes in a fraction of a second. That is, fatigue comes on more slowly with a greater excitant than with a lesser—a manifest impossibility. I think therefore that it is not a question of fatigue at all which causes insensibility to the irritant. So much for the one objection.

The other objection to the explanation of Ramon y Cajal is to the production of a nervous “discharge” by the irritant. If it is not a discharge, what may it be? You have perhaps noted a resemblance in the phenomena just described, to another series produced when a constant current is directed into normal muscle. You may remember that at the closure of the circuit we see a contraction of the muscle, while during the continuance of the current the muscle remains absolutely quiescent. Then, after the latent period, if the current is broken, a second contraction takes place, weaker than before but perceptible. Still another example may be cited. If a constant current is directed into the temporal region near the orbit, a flash of light is seen when the current is “made,” no sensation during its flow, while at the “break” again is seen the flash. And these results are the same whether the current is made and broken, or whether a pre-existing current is suddenly increased or diminished.

In our experiment we have introduced no current, but our results are strikingly similar to these. Might it be possible that the constant current had already been introduced for us—that is, had already existed in the body? Have we an anatomical basis for such a possibility? Let us go rapidly over the anatomy of some of the various kinds of end-organ in the skin—the tactile corpuscles. Such a corpuscle is an ovoid-shaped body consisting of a capsule, membranous septa, and an intracapsular liquid or semi-solid granular substance, surrounding the free terminal filaments of an axis cylinder which has penetrated to the interior of the corpuscle. The axis cylinder has lost its myelin coat, its sheath of Schwann before entering the structure; its sheath of Henle being continuous with the lining membrane of the cap-





Pacinian Corpuscle

A. Axis Cylinder. B. Myelin Sheath. C. Capsular Layers. D. End Bulb.  
E. Sheath of Henle.

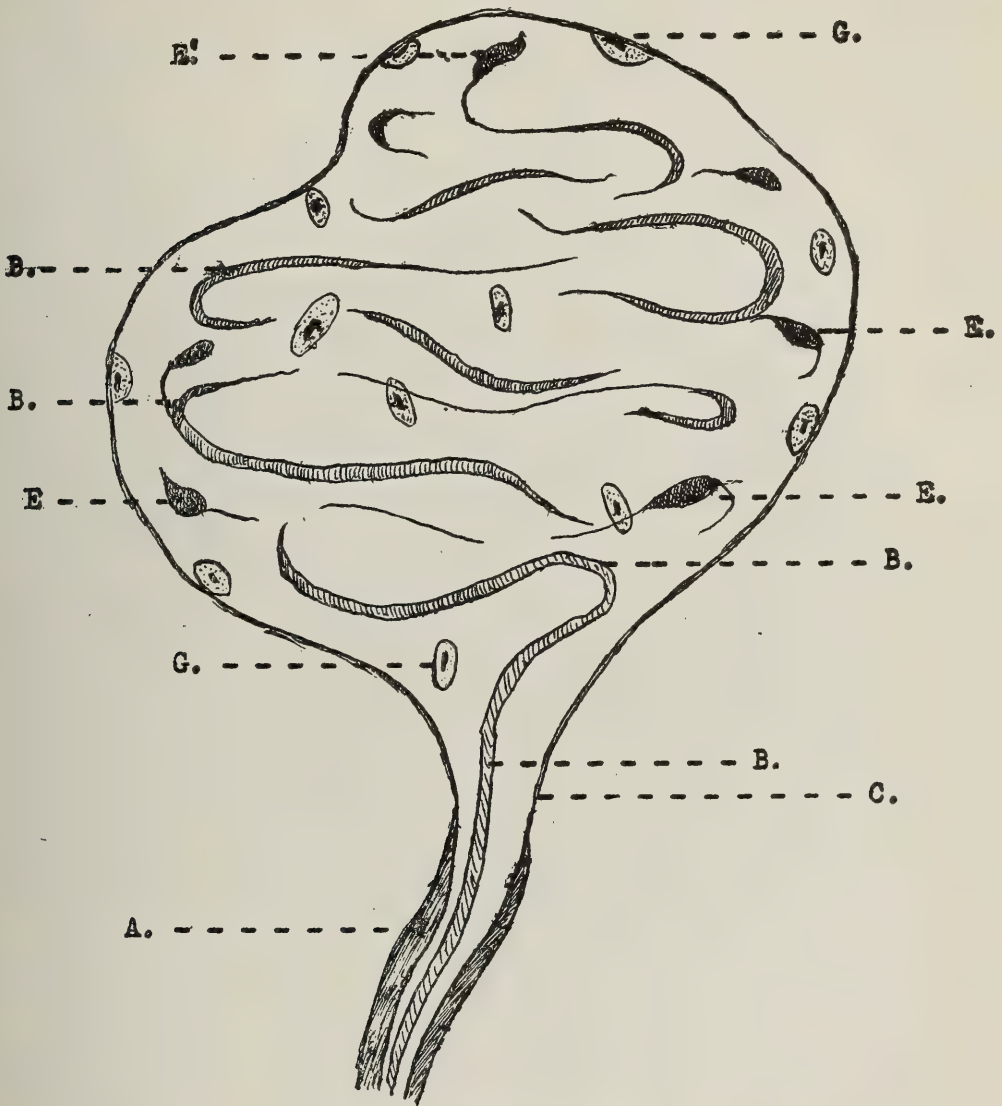
sule, leaving the fibrillae of the axis-cylinder free but for a minute covering of perifibrillar substance. The fibrils spirally advance through the corpuscle and terminate in free knob-like extremities near the limiting membrane but never touching it or one another. Ramon y Cajal suggests that this structure is for the purpose of keeping up the living force of the impression in diffusing it rapidly to all possible impressionable surfaces. All the sensory nerve-endings in the skin are constructed in an analogous manner—in some the capsular membranes are thick, with many layers and only one or two fibrils in the corpuscles. These are only slightly sensitive. Others have a veritable net-work of spirals of fibrillae within their walls and the walls are thin, consisting of but a single membrane. These are highly sensitive.

Now, what occurs when the pin is pressed over or near one of these end-organs? The semi-fluid intracapsular mass allows the end-knobs to be pressed closer to one another and to the limiting membrane of the corpuscle. This is synchronous with the first sensation of pricking that is felt. While the pressure of the pin continues, and these various parts continue to have the same relative position, our sensation is gradually dying out and finally disappears, the latent period of non-sensibility beginning. And the insensibility continues until the pin is removed and the parts resume their original positions. Then again do we perceive the stimulus.

We can produce an analogous condition with a galvanometer connected with the two poles of a constant current whose terminals are separated by water contact. While the terminals are a fixed distance apart, the needle is quiet. A sudden approach of one terminal to the other causes an oscillation of the needle which gradually comes to a stop, albeit the current still passes. The needle will remain quiet until the terminals are again suddenly separated, when a second oscillation takes place. In this experiment our terminals are the limiting membrane and the end-knobs of the tactile corpuscle respectively, the galvanometer a central cell, the one wire represents the afferent nerve fiber, while the other is a grounded return represented in the body by the excellent conductor—the blood stream—connected with the capsule of the corpuscle. The efficient cause of the sensation, then, is the diminution of the resistance to the passage of the current between the terminal knobs of the corpuscle on the one hand, and the capsule of the corpuscle on the other, due to their



closer approach. No original discharge need therefore be produced as Cajal declares, but simply a change in the intensity of an already existing current is necessary; the strength of such current varying inversely as the resistance, and the resistance being diminished by the pressure on the end-organ. The idea



Tactile Corpuscle of Meissner

A. Myelin Sheath. B. Axis Cylinder. C. Sheath of Henle. E. End Bulbs.  
G. Capsular Cells. E. Terminal Bulb.

therefore of a nervous "discharge" as well as so-called fatigue in the end-organ is hardly tenable in the light of this theory and its supporting facts.

Evidently if this theory is true, there must be throughout the body continuous streams of current flowing, and it is the diminution or heightening of their resistances that produces

effects. Such a theory presupposed a comparatively great current production in the body. Marinesco supposed that the chemical disintegration of the Nissl bodies in the cells of the cerebro-spinal system furnished the necessary kinetic energy, but Bielschowsky has shown that this cannot be true, for when ganglion cells are poisoned by selective drugs, though the muscle which they control becomes paralyzed, yet the muscle regains its functions before the central cells reorganize; and in the evolution of the nervous system the muscle acts before there is a nerve to innervate it. Therefore, the cells of the cerebro-spinal system cannot furnish the energy. It must be produced at some other point in the circuit. We know that the various activities of the bodily organs do produce currents which have been measured. Thus, active muscle produces current as was shown by Du Bois Raymond and Matteuci. Evaporation from the skin does the same. The oxidation of carbon, the chemical transformation in the viscera, the friction caused by the circulating blood in the blood vessels all give rise to electric currents. So that the assumption of the peripheral origin of the necessary kinetic energy is not far fetched. One series of experiments which I performed on animals depended for its results on this supposition. Briefly sketched, the experiment was as follows: The stomach, which has duplicate innervation from the vagus and from the sympathetic through the semilunar ganglion, was experimented upon. As the fibers of this double supply are distinct and separate until they reach the stomach wall, where they unite in the plexuses of Meissner and Auerbach, it is fairly simple to mechanically interfere with one set without disturbing the other one. I did this by tying off the vagus above the diaphragm sufficiently firmly to cause a pressure neuritis without entirely cutting off its conducting power, increasing thereby the resistance to be overcome by the nerve current. If the source of energy were developed in the stomach, then we would have as a result of this increased resistance via the vagus, a greater flow through the sympathetic; and by virtue of this greater flow, an increased activity in the sympathetic ganglion with the reciprocal increased activity in the vegetative functions of the stomach glands. In other words, we ought to find an excessive growth of cells in the stomach. As a matter of fact, the animals, which were allowed to live for three months after the operation, all showed a marked increase in the number of glands in the stomach. This increase



amounted to three and even four million glands in some instances. I think that it is reasonable, therefore, to assume that the stomach was the source of energy which furnished the current. A corollary to this theorem would seem to be that as the source of the energy is the stomach, and as the two sets of nerve fibers unite in the plexuses of the stomach, the current would have a circuit without the necessity of traversing the higher ganglia, and could, therefore, dispense with the latter. And this is exactly the fact. Langley, Pawlow and others have shown that if the nerves connecting the stomach with the central ganglia are severed, the stomach will still continue to perform its work for an indefinite time, albeit irregularly and wastefully.

We have now all the elements necessary for our pre-existing constant current, and this fact, coupled with the phenomena we have observed in cutaneous sensation, leads me to present this theory of the nature of cutaneous sensation, namely:

1. Cutaneous sensation depends for its production upon the changes produced in a constant current, pre-existing in the end-organ;
2. These changes are brought about by varying resistances to the passage of the current through the end-organ; and
3. The resistance may be made to vary by different means, the chief among which may be said to be pressure and temperature.

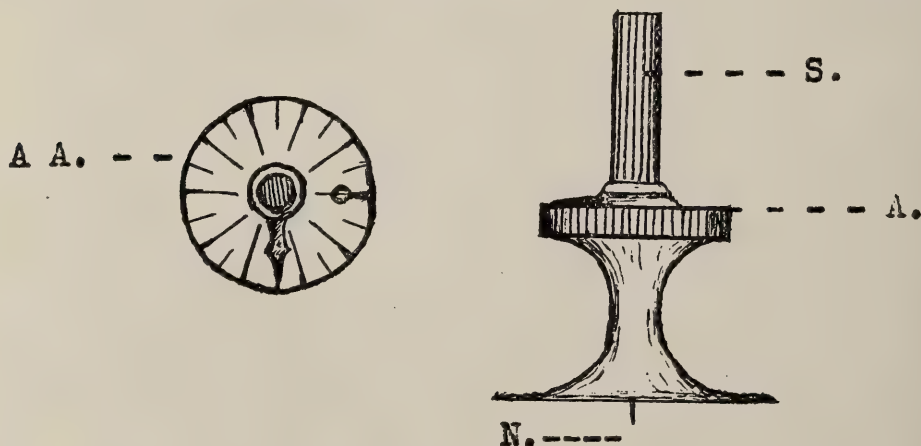
Let us now return to our first experiment and amplify it somewhat. Actually, though not appreciably, the pin point is felt as "touch" before it begins to be felt as "pain." And after the pain has vanished, that is, sensibility to the point has ceased, we still feel "pressure" at the same place. But even this pressure is evanescent and also disappears in its turn, even though the pin continues to press on the skin. But its disappearance is much slower than that of the pain and its termination is more difficult of detection.

The time between the first sensation of "touch" and its transition to "pain" is almost instantaneous, and clinically defies measurement. The time between the disappearance of "pain" and that of "pressure" is much longer but very indefinite. But the time from the beginning of the pin-prick as a painful sensation to its disappearance as such is definite in its length and can be measured, for its beginning and its end are well marked. This period is comparatively easy to estimate. It is for this

reason that I have taken the so-called pain sense as the type of cutaneous sensibility and have attempted to measure its intensity.

Both the sense of touch and that of pressure are in their origin of a nature similar to pain, as we have seen in studying the construction of the different end-organs—there is even reason to suspect that the temperature sense is also closely allied—but their measurement introduces problems which vastly complicate matters.

Now, the different conditions in the evolution of the sensation are variable. The original pin-prick may be superficial or deep. In the former case, the length of the time taken for the sensation to disappear—which I call the pre-latent period—is short, a fraction of a second; while in the latter it may be many seconds in duration; but in my experience there is a certain direct ratio between the depth to which the pin presses and the pre-latent period, that is, the deeper the pressure the longer the pre-latent period. In hypersensitive areas, the pre-latent period is longer than in normal ones, and in hyposensitive areas it is shorter. These facts give us a basis for the construction of a formula for sensitiveness. It is  $S=T \div D$ , in which T represents the time of the pre-latent period in units of time, while D represents the distance to which the pin descends in units of distance.



A. Position of Dial. AA. Dial seen from above. S. Milled Head.  
N. Needle Point Emerging from Base.

That is, we can express sensitiveness in terms reduced to time and distance, both of which are capable of measurement. An instrument based upon this formula was made for me by Dressler, of New York. It is constructed as follows:

A flat, circular metallic base is perforated for the egress of a pin which descends by turning a milled head micrometer screw.



Each entire turn of the screw causes the pin to descend one millimeter below the base. A dial connected with the screw head enables one to read easily the amount of descent in  $1/20$  parts of a millimeter, while the unit of time is conveniently fixed at  $1/5$  second. It is used in the following manner. The flat base is placed against the skin and held without undue pressure, the dial at zero. Slowly the screw is turned until the patient states that he feels the point of the pin. From this moment the time in  $1/5$  seconds is counted until he states that he no longer feels the pin. The depth of the descent is then read off from the dial in  $1/20$  millimeters. The ratio of time units to distance units is then a matter simple to calculate. In normal conditions this ratio is found to vary from  $1/2$  to  $1\frac{1}{2}$  for different parts of the body. The scale which I have found convenient is:

0.....	Analgesia
0 to $1/10$ .....	grade 1
$1/10$ to $1/2$ .....	grade 2
$1/2$ to 1 .....	grade 3
1 to 2 .....	grade 4
2 to 3 .....	grade 5

Of these grade three is normal, one and two denote hyposensitiveness, four and five hypersensitiveness. So, if the time for the prelatent period is  $1\frac{3}{5}$  seconds and the pin has descended  $14/20$  of a millimeter, we get the fraction 8 divided by 14, which is greater than  $1/2$ , and therefore, grade three.

This little instrument, when used properly, is of great value not only in diagnosis, but in setting a standard of sensation for each patient. So that, instead of being reduced, as now, to the simple statement that there is hypersensitiveness or hyposensitiveness present, we are enabled to register the sensitiveness in degrees with a fair accuracy. But, exceeding this in importance, is the power it gives us to determine slight differences of sensation, which until now has hardly been possible. I shall cite only one instance. We had at the Neurological Institute some weeks ago a patient with brain tumor. His symptoms were apparently conflicting, so that the localization was variously given as cerebellar, cerebello-pontine-angle and thalamus. Upon examining the patient with this sensitometer, I found that the sensation of the entire right side of the body registered between grades 1 and 2. On the other side it was always grade 3 and occasionally grade 4.

While he had been examined in the ordinary ways by many, no differences between the two sides could be made out. The tumor therefore had to be in a situation in which the sensory tracts were interfered with, on the contralateral side to the hyposensitive-ness, that is, the left side of the brain. This, taken with other signs was sufficient to locate it positively in the pons; and there it was found on autopsy. We can therefore diagnose with a fair degree of accuracy, the fact of interference with the sensory tracts by means of this instrument, long before cruder methods can give us any information whatsoever.

In hysterical hypesthesias also, the instrument is of value. The patient will deny that he feels the pin point until the point has descended quite deeply. But this excessive depth in a normal sensory system, organically sound, will be followed by a pre-latent period of proportionately greater length and the resulting ratio of time and distance will therefore remain the same. In our experience, the hysteric has been differentiated very clearly from the organic hypesthesia a number of times. I cannot dwell too long upon the one important feature in the use of this sensito-meter, namely, that it is never the question with the patient of the intensity of pain that he feels—about which there is always the great personal element, the personal equation, which enters—but of a certain definite length of time during which he feels the pain, and about which there is little or no uncertainty. In this regard it differs from all other instruments for testing sensation.

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**Instruction in Roentgenology.**—A. Henriques and L. Ambrose (*Journal A. M. A.*, Aug. 22, 1914), review the report of the *Deutsche Röntgen-Gesellschaft* on instruction in medical roentgenology. The necessity of thorough instruction in this subject and the need of co-operation of the universities in research work in this field is shown. While roentgenology has become specialized with a complicated and difficult technic, it requires a broad and deep foundation in general medicine. The technic must be accurate, and in the interpretation of the plates there must be knowledge of the possible sources of error. Recommendation is made that the subject be taught in the higher institutions by a lecturer especially trained in this work, who shall support the other clinics by expert advice and enlarge the scientific work in his own specialty. A study of the roentgenologic instruction in the United States is given, with the finding that in about one-third of the A plus colleges instruction in roentgenology is omitted entirely and in the others it has no recognized status, showing meager opportunities for acquiring a knowledge of medical roentgenology. The science is new, but is in touch with all other branches of medicine and has already made valuable contributions. The authors remark that the time has come when the systematic teaching of roentgenology should be given a definite place in the curriculum of the medical college.



## PALAEOLITHIC GIANTS AND DWARFS\*

By T. WINGATE TODD, F.R.C.S., The Anatomical Department,  
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According to German legends the uneven surface of the earth is due to the restless trampling of its surface while still newly created and soft, by the giant inhabitants who lived in those early days, and who were indeed the first creatures of manlike form to come to life. Dim, uncertain and ponderous, they lived in the ice-bound regions of the far north amid the sea fogs and the darkness of the long winter night. With a touch of modern feminism their ladies, in distress at the huge size of the feet of their lords, wept the streams into being in chagrin at the destruction thus wrought on the fair surface of the land.

However that may be, tradition has always declared that "there were giants in those days." The Hebrew spies returning from the promised land declared: "We saw the giants, the sons of Anak, and we were in our own sight as grasshoppers, and so we were in their sight." Allowing for the figurative speech of that picturesque people, we still have the impression that they had seen men of a fairly tall order. And in the face of this it is a bit disappointing to learn that an average-sized Englishman of today would have the greatest difficulty in squeezing himself into a suit of armor belonging to the Middle Ages. Still, all men were not giants, and the belief that some at any rate were huge will die hard. So far we have not come across any Palaeolithic types who were even so tall as we ourselves, and it remains to state what result has come of the search for the remains of the Anakim.

Sporadic instances of giantism are not very uncommon today: in every army are to be found one of two individuals of more than usual human stature. In the Museum of the Royal College of Surgeons in Lincoln's Inn Fields, London, there are preserved the casts of hands and arms of several of the giants of a couple of centuries ago. There also is to be seen the skeleton of the famous Charles O'Brien, who stood eight feet four inches tall. More or less authentic records state that Charlemagne was nearly eight feet in height; Harold Hardrada nearly eight feet; Maximinus eight feet six inches. Further back accuracy is sacrificed to the picturesque. Og King of Bashan is said to have

\*Containing the Substance of the Museum Demonstration on Human Palaeontology Delivered March 17, 1914.

The five preceding articles of this series of six have appeared in *The Cleveland Medical Journal* for March, April, May, June and July, 1914.

walked beside the Ark during the Flood, and after he was dead (he lived 3,000 years), one of his bones was used as a bridge over a river. Of course even in later days truth was sometimes veiled in romance. Angoulaffre of the Broken Teeth, who leaned against the Tower of Pisa and thus displaced it from the perpendicular, stood eighteen feet high.

Several centuries ago men were keenly observant for evidence of prehistoric giants. In 1577, according to Doctor Plater, the skeleton of a man nineteen feet in height was discovered at Lucerne. Two human skeletons are said to have been exposed near the Rhone, both being thirty feet high, in 1456 and 1613 respectively. But these stories are far outdistanced by the report in the fourteenth century that the skeleton of the monster Polypheme had been unearthed at Trapani in Sicily, and that he must have stood at least three hundred feet in height!

Coming down to actual fact, there are the skeletons of ten men and two women of the Pleistocene period who belong undoubtedly to a tall race, and this is the nearest authentic approach to the Anakim. The men stood five feet eleven and one-half inches to six feet three inches in height, and the women were shorter. Only one female skeleton is sufficiently perfect to enable us to estimate her height, but if she represents the average, the women were only some five feet three and a half inches tall. Like those of so many other of the people who lived in the Glacial period, most of these skeletons were found in the watershed of the Dordogne in France. The first examples were unearthed near the village of Cro-Magnon in 1868, and hence the remains have been termed the Cro-Magnon race. These people lived later than the Galley Hill man; they are first found in the Solutrean period, and extend into the time of the Magdalenian culture. They were fairly widespread, for remains which may be attributed to this race of "giants," have also been found in Monaco and in England. Where they came from and what were their beginnings, no one yet knows. Probably they were the descendants of a race of Aurignacian culture, the loess-hunters, of whom the Brunn man described in the last lecture, was one. The loess-hunters hunted the wild horses, the reindeer and the mammoth, and have left, especially in the valley of the Rhone, many traces of their presence, not merely in their own bones, but in the vast quantities of bones of the animals which they pursued. Apparently the beasts were driven in herds over the edge of a precipice, much as the bison



were chased by the North American Indian. Many interesting facts concerning them are to be found in Buttel-Reepen's book, to which reference has already been made, and in story form for children in an excellent series by K. E. Dopp, of the extension division of the University of Chicago. It is possible that the bones discovered in 1456 and 1613 were those of mammoths which had fallen victims to these men. During the last warm interval of the Glacial period, there were wide expanses of steppe in many parts of Europe, and the dust storms which swept over these resulted in the accumulation of what is now a peculiar kind of clay known as the *Loess*, from which the loess-hunters derive their name.

But the Cro-Magnon race was in its full physique and development in art when we first know of its existence. Never before in Europe had so cultured or so fine a race of men

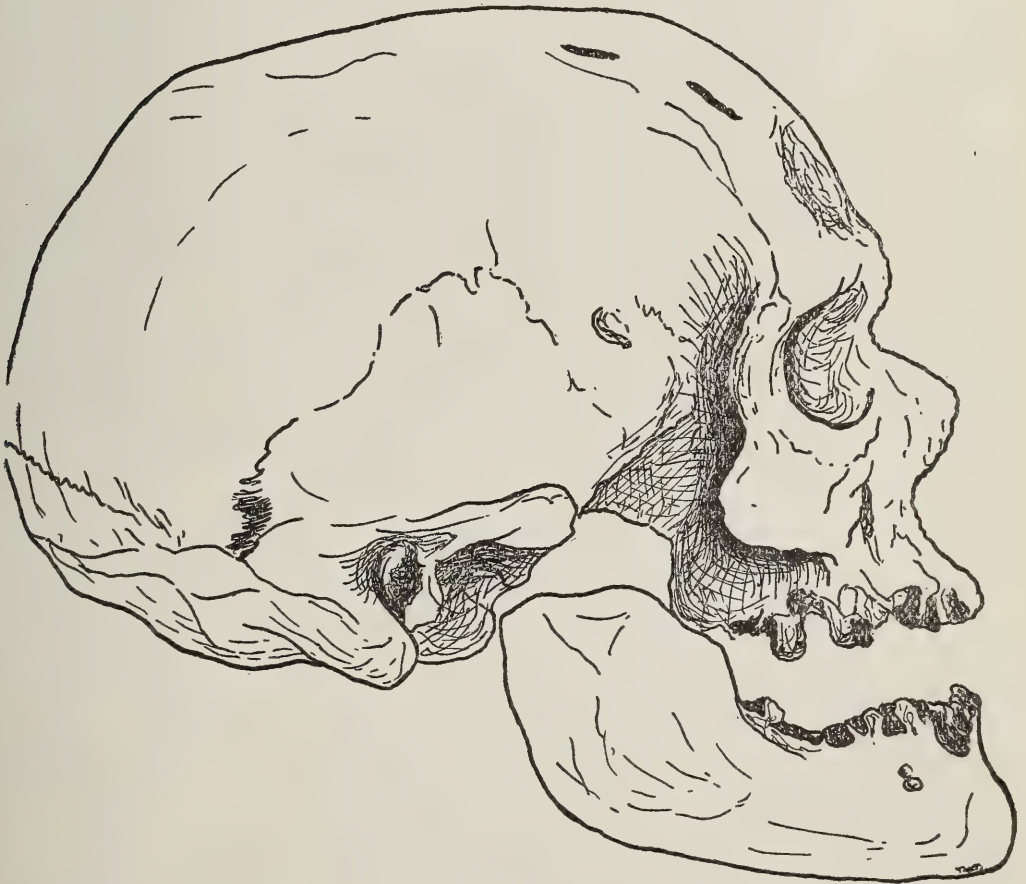


FIG. I.

Right side of the skull and mandible of Cro-Magnon man. Half natural size.

Note the large size of the cranium, the high forehead, the size of the temporal bone, the shape of the mastoid process. The skull is essentially of the *Homo sapiens* type. The mandibular ramus is very massive, the chin pointed, and the orbits compressed from above downwards.

existed. Their pictures, carving and implements are all characteristic. They hunted mostly the reindeer, and some very beautiful pictures of the animals have been left by these men for our inspection in the caves of France and Spain. One link remains to us of the Magdalenian culture in the modern Eskimos, who still represent this early type of civilization.

The Cro-Magnon race, as we have learned, was tall; so tall compared with other prehistoric races that we may consider its members to be giants. The skull of one of them is figured in this article.

What immediately strikes one about it is its great size. Its length is 203 mm., and its breadth 150, measurements greatly in excess of those of our own skulls. The height, however, is only 120 mm., less than one would expect from the length and breadth. A peculiar feature is the flattening of the occiput, which looks, as Professor Keith says, as if the upper and back part of the crown had been plastic and struck by a spade. Nevertheless the occiput is prominent, with large mastoid processes shaped as in ourselves, and well marked occipital ridges, showing a strong and bull-necked physique. The temporal ridges, though prominent, are not high as in Neanderthal man. The forehead, like the face, is wide. The prominent eyebrow ridges are much better marked in the male than in the female. The capacity of the cranium has been estimated at 1,800 to 2,000 c.c., whereas in modern Europeans the cranial capacity is only 1,500 c.c. Men of the Cro-Magnon race had, therefore, a larger brain than we, but, as previously pointed out, this fact must not be taken to mean that they were more highly evolved.

The Cro-Magnon skeletons were discovered at a time when men expected to find an orderly progression in the evolution of man, and temporarily Darwinism received a check until it became realized that evolution has nothing to do with mathematical order.

The face of these men was short, wide, with flat cheek bones, and orbits narrowed from above downwards. There was no prognathism. The palate was large, the chin narrow and pointed, the masseter large and powerful. The mandible is hollowed out, and shows the mylo-hyoid ridges and genial tubercles as does that of modern man. Of the teeth, the upper incisors have a tendency to project, and the canines are reduced.



The Cro-Magnon race belonged therefore to the variety *Homo sapiens*, although Professor Klaatsch has stated his belief that these men were a hybrid tribe, having in them Neanderthal blood also.

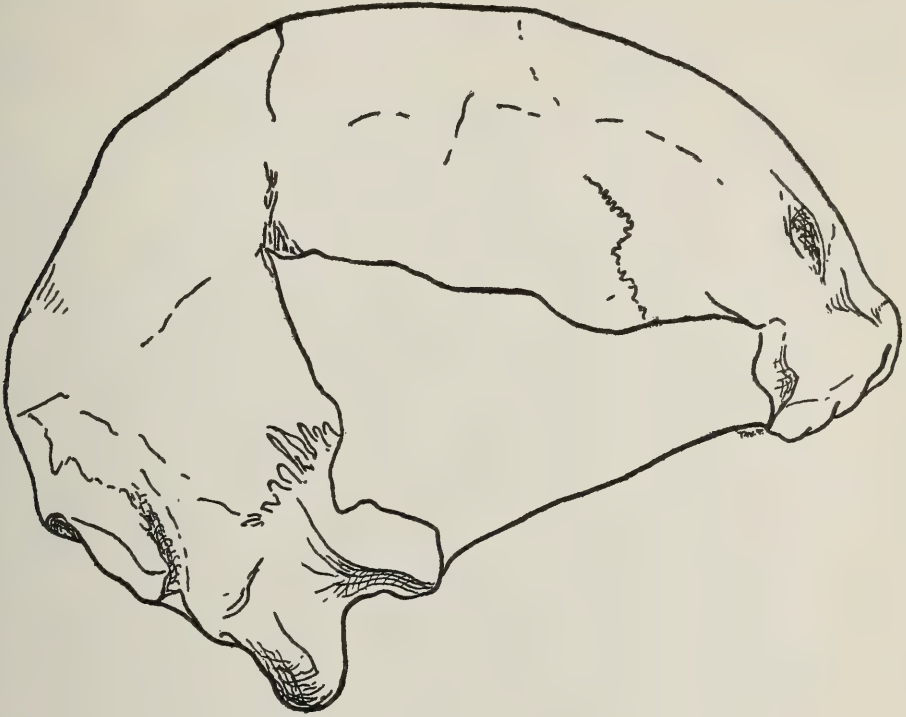


FIG. II.

Right side of the cranium of Brunn man, an undoubted specimen of the *Homo sapiens* race, for comparison with Cro-Magnon man. Half natural size.

The tibiae are long like those of the negro. Taking him altogether, Cro-Magnon man shows certain characteristics like those of the modern Mongolian. The short, wide face, prominent cheek bones, projection of the upper incisors and narrow pointed chin are similar to the corresponding features of certain Asiatic tribes of the present day. Is it possible then that the Cro-Magnon race, like the Huns, arose in Asia and migrated west? Is it possible that in the Cro-Magnon tradition also there was some hero similar to Csaba, who should lead his army of living corpses back to the graveyards of their forefathers? The first we may answer when the vast Asiatic territories have been explored for human remains, but the second, never, since the Cro-Magnon people left pictures only and no writings. Famous as they are today, cultured and skillful as they once were, they vanished silently as they came. With the end of the reindeer period, the Cro-Magnon people disappeared completely. It may be that the tall commanding men of our day have Cro-Magnon blood in

their veins, but this is conjecture, romantic and unscientific, for it has no basis in undoubted facts.

If then the giants have dwindled to the stature of modern men, what of the dwarfs? Are our visions of them also to be dispelled? Is the stature of these fellows who were bred like maggots in the flesh of the slain giant Ymir, as mythical as that of the Anakim? In the Middle Ages, the dwarfs were believed in just as much as the giants. Their envy of the height of mankind was said to induce them to improve their race by winning human wives, or stealing unbaptized infants in the place of whom they substituted their offspring for the human mother to nurse. Changelings were recognized by their puny and wizened appearance. If a woman, despoiled of her baby, desired to recover it, she must either brew beer in eggshells, or, more horrible in practice, grease the soles of the child's feet and hold them so close to the fire that the dwarf parents, attracted by the

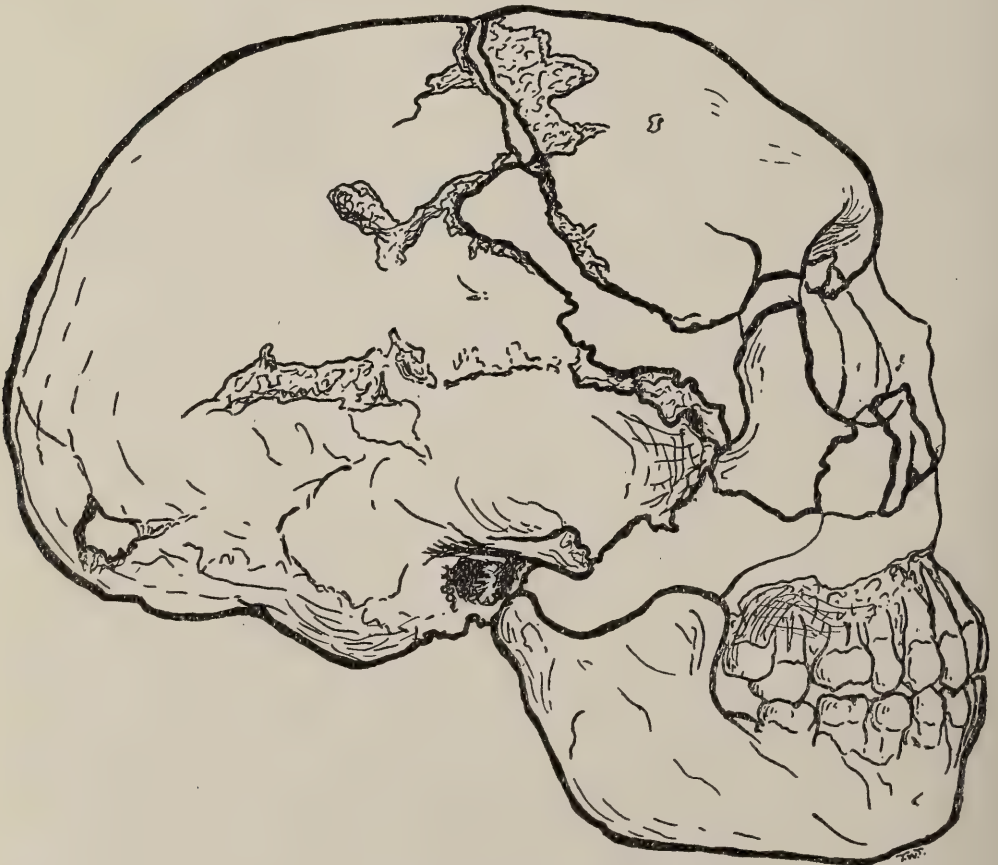


FIG. III.

Right side of the skull and mandible of *Homo Mousteriensis*, a definite Neanderthaler, for comparison with Cro-Magnon man. Half natural size.



distress of their offspring, would hasten to claim it and return the stolen little one. Some say the dwarfs really existed, that they were the Phoenician miners who worked underground for coal and iron, copper and gold and tin. Others say they were a small dark-haired race of Neolithic men woven into the fairy tales and traditions of the early peoples of the age of metals.

In 1910, fragments of a skeleton were discovered in a cave of the Serranía de Ronda, Andalusia, Spain. These indicate that their possessor must have been adult and of dwarf structure. Though a full description was promised, I have not yet had the good fortune to obtain it, and do not know if it has appeared. The remains are, however, sufficient to indicate that in past ages there were pigmies, as there are today, and with this scanty reference we must leave the dwarfs.

It has already been stated that Neanderthal man had probably a pigmented skin. In all primitive men it is likely that the skin was dark colored, olive at least. Cro-Magnon man no doubt shared this characteristic. But there have been found in the Grotte des Enfants, or Grimaldi Cave, near Mentone, two skeletons, one male and one female, which in the projecting cheek bones, prognathous jaws and sloping teeth, resemble the modern negro, although some hold that this Grimaldi race is more nearly allied to the modern Australian. They certainly were not pure negroes and possibly may not have been hybrids. They lived at a time when there were land bridges between Africa and Europe, and they were found buried beneath twenty-eight feet of debris. They belonged to a date previous to that of the Cro-Magnon race, and it is interesting to note that the natives of the uplands of Hawaii of today reproduce the cranial features of these ancient inhabitants of the Grimaldi Cave (Keith).

And with this we must end for the present our excursions into the ancestry of man, and leave the types, Pithecanthropus and Heidelberg man, Gibraltar and Neanderthal, *Homo fossilis*, *Homo sapiens*, the Dawn Man, Cro-Magnon, Grimaldi, olive and black, giant and dwarf, cultured and uncultured, River-drift man, Cave man, fighter and hunter alike, until further investigation has cleared away more of the mists of uncertainty through which we have been groping with but a little knowledge to aid us in our search.

**GASTRIC SURGERY—SOME RECENT ADVANCES\***

By FREDERIC C. HERRICK, M. D., Cleveland

In the preceding decade medical thought was extremely slow in its development of the etiology of stomach lesions. Surgical practice, for a time, far outstripped a rational therapy and was forced to retrace its steps and vie with the pathologist in his search for the causative factors and correct classification of various types of gastric ulcers. It can be easily appreciated why the surgical world, with a flood of ambitious operators, fascinated by being able to place a finger on the lesion itself has, therapeutically, followed a purely experimental course, based upon incomplete understanding of gastric physiology, and in many cases incorrect theories as to the cause of its lesions. Happily, this period is passed and we are well advanced toward an understanding of the causes and a more accurate diagnosis of gastric disease. This change was possibly due to an appreciation of several facts, e. g., it was said with some truth, the stomach is the most sinned against and least sinning of all the abdominal organs, the stomach is the seat of more symptoms with less organic disease than any other organ, it stands as the gateway of the abdomen; common sensation is referred to it though wrongly, the individual with an overtaxed or especially acute nervous mechanism refers disturbances to it most readily, the active business man going from office to lunch room and back, the laborer with cold lunch, who then demands his most active circulation in the muscles, and many others too numerous to name, ignore the necessity of proper food and proper time for the stomach's work. Again, it became boldly apparent that disease in distant organs is referred, possibly for temperamental, possibly anatomical reasons, to this organ of which we are semi-conscious. Thus I might review numerous histories of women with pelvic lesions, but complaining of major gastric signs in whom the removal or correction of the pelvic disease, followed by rational therapy, resulted in gain of weight and complete return to health. Moynihan has said, "The most frequent location of duodenal ulcer is in the right iliac fossa." The recognition of the fact that the appendix plays a wonderful role in gastro duodenal symptomatology, and that its removal frequently relieves these annoying troubles has preserved many stomachs

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\*Read at the August meeting of The Union Medical Association of the Sixth Councilor District.



from attack. The gall bladder, the lung, pleurisy, the kidney less often, all furnished symptoms for long attributed to stomach disease. These facts have demanded that the ardent specialist must have a wide experience in general practice; that the surgeon know the modern and many old beliefs of the cause, course and treatment of every condition he attempts to remedy. I often fear that the modern tendency is to demean surgery to a purely technical subject, and feel strongly that the best surgeon is the best physician with the best surgical technique. This is an ideal, for the danger is, that the modern surgeon lose his touch with general medicine.

Thus, by exclusion of extragastric disease with gastric symptoms, a great step was taken and organic disease of the stomach was found far less common than for long believed. The following seems to be the present trend of thought and some of the progress in surgical disease of the stomach. There seem to be mainly three groups of causes which favor ulceration:

1. The predisposing condition.
2. The exciting cause.
3. The factors favoring its chronicity.

#### **Predisposing Condition**

Poor nutrition or anemia, from any cause, lower the functional capacity of the stomach and its power to repair trauma. A chronic toxemia, syphilis, or some persistent infection from nasopharynx, teeth, tonsils, appendix or fistulous tract may be the cause of this blood change. What the specific change in the blood serum is has recently received some light from the work of Bolton, who, by the injection of serum from an animal immunized by the injection of gastric mucosa emulsion, produced some change in the gastric mucosa, rendering it digestible by the gastric juice. Such a serum change is difficult to clearly define by present methods, however, Bolton's injections were both general and local into the stomach wall and chronic ulcers resulted. The occurrence of duodenal ulcer following extensive burns where there is a large destruction and change of the blood serum is mentioned in this relation. The fact that ulcer does not occur elsewhere in the body or intestines, except where a digesting secretion comes in contact with the altered mucosa is suggestive. This work is supported by Schwartz, who says, "gastric ulcer is one symptom of gastric ulcer disease," and, in fact, numerous

cases were reported of excision of one ulcer with development or recurrence of others. I, at one time, found on examining 100 cases of chronic ulcer that there were more than one in 37 per cent of the cases. This multiplicity of ulcers has been a powerful argument, in fact, the one on which Rodman bases his claim for excision of the so-called ulcer-bearing area in chronic ulcer of middle life. We do not know what substances may, under certain conditions, occur in the blood injurious to the gastric mucous membrane; in fact, it is probable there are many such. Again, Bolton found that hyperchlorhydria of greater than .9 per cent was invariably followed by ulceration with or without trauma, and that when certain mechanical disturbances were present, such as pylorospasm, hyperperistalsis, the ulcer persisted. He found bile acids regurgitated into the stomach to have the same effect. Ordinary vinegar containing 4 per cent acetic acid was especially effective.

A second step in etiology and one which may interlock with the foregoing is the work of Rosenow, who isolated streptococci from human ulcers which showed as marked affinity for gastric mucosa as the rheumatic infection does for the joints. Many dogs injected died within two weeks of perforation or hemorrhage from fresh ulcers. Similar results were produced by colon bacilli, obtained likewise from human ulcers, so that not so much a specific organism as a specific weakness, for that organism seems to be a factor. Mayo and others have pointed out the local resistance of the various tissues to organisms having a natural habitat in those tissues, but their transmission to distant tissues not possessing such immunity, results in disease. Several authors (Eppinger, Hess) and Rössle more recently have attempted to show that ulcer is usually secondary to *irritation* resulting in reflex vagus tonicity. This vagotonia results in spasm of the muscularis mucosae, consequent local anemia, intercurrent infection or local self-digestion. Hyperacidity is also a result of vagus stimulation, acting as a further causative factor. This vagus tonicity causing muscular spasm and hyperacidity (the latter early in the disease at least) are present in the majority of cases, and must be reckoned with as factors in the chronicity of ulcer, if not its early cause. Barclay, based on a large experience, believes that this reflex spasmodic narrowing of the pylorus, food retention and concentration of gastric juices, together with trauma of the mucosa from coarse food, possibly



with infection, form the chain of causes. In medical treatment he accordingly uses the physiological sedatives of vagus action, atropin and papaverin, with gastric and general rest and graded diet.

One further predisposing factor to duodenal ulcer must be mentioned. Wilkie, by a series of injections, showed the upper two-thirds of the first portion of the duodenum to be deficient in blood supply. Injection of the coeliac axis above and the superior mesenteric below failed to inject this area, except where the supraduodenal branch was present. This vessel having a widely varying origin and distribution was often absent. This uninjected area, as is well known, is the favorite location of duodenal ulcer. When no ulcer exists, it is represented by the so-called pale spot, long recognized and for a time confused with ulcer.

As to the exciting cause of ulcer, trauma, mechanical or thermal, muscular or from irritating food still holds first rank.

Cause of chronicity of ulcer. In addition to the persistence of the above factors, certain local conditions prevent healing. These local conditions are, at present, of especial interest because they often require surgical treatment. Until the primary causes of "gastric ulcer disease" are understood, every patient past 35 years of age, possessing a chronic ulcer, after a short medical trial, demands surgical treatment. This course is necessary because organic change has occurred in the stomach, rendering a return to the normal an extremely tedious process if indeed it can ever be brought about by medical means, and secondly, because, as will be mentioned later, we can never tell when cancer has, or will develop on such an ulcer.

These disturbances of the mechanics of the stomach are, pylorospasm, cicatricial pyloric narrowing, contraction of the muscularis mucosa when it has been perforated, thus broadening the ulcer base, adhesion of the muscular and peritoneal coats of the stomach to each other around the ulcer, preventing a normal muscular action and circulation to the ulcer, and extra-gastric adhesions to the peritoneum and neighboring organs. Add to these hyperacidity and the presence of food and peristalsis, and chronicity is assured.

It is today apparent that the real duty of surgery in ulcer is to correct the faulty mechanics of the stomach which have developed as a result of the local disease. Thus far, surgery is of

avail, but before and after this time, the problem belongs to medicine.

*Ulcer and Cancer:* What causes, or even what constitutes cancer is still unknown. Perhaps in the present-day zeal for seeking out the earliest cancerous cells, the observer may be misled in the belief that a group of cells readily taken care of in life seems, after death, to differ in no way from cancer, yet, after much discussion, it must be granted that above 50 per cent of gastric cancer originates as ulcer. Langwill, from an experience of 200 cases remarks, "All cases of gastric ulcer, healed or unhealed, are potential carcinomas." Until we are able to determine at operation what cases are not cancer, all chronic indurated ulcers in patients past 35 years of age, at or within the pylorus, are treated by excision. In this connection, the following medical observations are of value:

Of 120 cases of chronic ulcer, 87 per cent left the hospital apparently well after non-surgical care. Some years later, 35 per cent were in fair health, 5 per cent poor health, 30 per cent dead from some ulcer complication. More women than men were permanently recovered (44 per cent to 22 per cent). The mortality among women was less than among men (10 per cent to 39 per cent). (Pirila). A few authors, such as Aschoff, Paterson and Kocher, still think the cancer incidence on chronic ulcer is as low as 14 per cent.

*Diagnosis:* The tendency is toward a routine simplicity in diagnosis of stomach conditions. The test meal is not of great value; acidity is extremely variable in ulcer diagnosis, though a failing hydrochloric acid with the presence of lactic acid is of value as strongly suggesting cancer. The passage of the tube, for the purpose of determining the presence of retained food, the location and size of the stomach is of great value. Moynihan's former statement, that hyperacidity is duodenal ulcer is proven fallacious, and further, it is shown ulcer may be present with lowered or absent hydrochloric acid. Pylorospasm with gastric-atony and dilation, frequently accompanies chronic appendicitis, gall bladder and kidney disease. Of fundamental importance is the case history as to pain, its chronicity, daily regularity, one or two hours before meals in duodenal ulcer, soon after meals in gastric ulcer, its severity, its relief by taking food or alkalis in the former condition, by vomiting, in the stomach ulcer. Periodical remission of these symptoms is characteristic.



In no other stomach condition does complete remission of signs occur; in chronic catarrh there may be remission, but never total absence of signs. If the pain *radiates* except through to the right of the spine, consider the possibility of gall bladder disease, appendicitis or renal disease. Acid eructations and pylorospasm are confirmatory. We must always remember the dictum, that epigastric symptoms are most often due to extra-gastric disease.

To the röntgenologist is due the greatest credit for advance in the diagnosis of gastric conditions, and for placing us right in many previous misconceptions. In doubtful cases it must be resorted to

1. For rendering a positive diagnosis.
2. In aiding in the location of the gastric lesion.
3. In the diagnosis of malignancy.
4. In diagnosing the non-operability of cancer.

Above all, the Xray has been the great developer of our understanding of the physiology of gastric motility, and has aided in the technical difficulties of the surgeon. Contrary to a former belief, gastro enterostomy is holding its own as a method of placing the stomach at rest, relieving tension and favoring the regurgitation of alkaline intestinal juices, and has been well shown by the Xray (Outland, Skinner, Clendenning) when properly placed, to give passage to food, although the pylorus be unobstructed.

*Diagnosis of Cancer:* Following the work of surgeon and pathologist, we recognize today that gastric cancer must be divided into two groups, i. e., those occurring on ulcer and those in which there was no preceding ulcer, the cancer developing primarily.

In neither of these groups are we able to diagnose cancer in the operable stage. In the cancer on ulcer, fortunately, the preceding ulcer signs are our warning. In primary cancer *all* localizing signs may be absent, progressive anemia and weakness furnishing a puzzling clinical problem. Surgical results in these two groups are well shown by the following: Of 69 cases of cancer resection, 66 per cent of the cancer on ulcer cases lived between 3 and 4 years, while but 33 per cent of the primary cancer cases lived over one year (Faroy). This is further evidence to that furnished by numerous operators, that cancer on

ulcer gives far better surgical results than primary cancer, because it is earlier diagnosed, resected and beginning cancer found.

Would that I could report in this meager review of recent progress a universal appreciation of this fact by internists. Instead, the search for a diagnosis is too often prolonged beyond the time when surgery would add at least a few years to life. Yet, from the very nature of progress we must search for specific tests. Of these that relying on hemolysis (Crile) in which 82 per cent of general cancer cases gave a positive reaction is of some value. Only a small per cent, however, of early cases, those in the favorable operative stage, were positive. In 100 per cent of recurrent cancer the reaction was positive. (Weil, Bard, Kelling, Ed. *J. A. M. A.*, LI., 216 z.) The chief value of this test seems therefore to be more an indication that cancer in its early stages is purely a local disease, but does not give us the diagnosis in the golden hour for surgical cure. The second test seems possibly to be of more value, because it relies upon the local gastric disease for its action before a serum change has occurred. This is the Glucinski test. It consists in a test breakfast, after the removal of which a test meal of soup, meat and potato is given. It is found in cases of cancer that the stomach secretion does not react normally to the second meal, but shows a decrease or absence of hydrochloric acid and ferments from that following the test breakfast. This, of course, is contrary to what would be expected in the normal stomach. In ulcer the Hcl is greatly increased after the second meal.

*Treatment:* It must be recognized that conclusions regarding treatment are most difficult to draw. Medical statistics, with the uncertainty of absolute diagnosis, with the great frequency of gastric neuroses and extragastric disease confusing the diagnosis cannot be reliable. Recently one author reported conclusions from 1,000 cases of gastric and duodenal ulcer medically treated. Statistics, regarding the various clinical signs of ulcer, from such a series must be manifestly unreliable. Results of treatment, when many conditions simulate ulcer undistinguishably, cannot be trusted. Yet this is the basis for all statistics of non-surgical care. Possibly the Xray in time may make it possible that two series of cases with absolute diagnosis may be treated by medical and surgical means. Such would be a great advance in this intangible problem. To the surgical world, there is a like problem, though not so acute. When operating for clinical signs of



ulcer, we must find sufficient cause for these signs, whether it be ulcer or appendix, gall bladder disease, etc. Yet an examination of the stomach sufficient to include or exclude ulcer is difficult, and at times impossible. I have worked up this problem from another standpoint, and hope soon to report it, but in the meantime, have used with some satisfaction an instrument with electric illumination and air inflation, for viewing the stomach's interior at operation. This has likewise been done by Rovsing, Gobel and Petren. It is still sub-judice. However, certain definite indications for operative treatment may be gleaned from the foregoing, and these I will give you in closing.

1. In opening the abdomen for supposed gastric disease, no operation upon the stomach should be done unless a definite gastric lesion is found. Remove the appendix, examine the gall bladder and other viscera.

2. Signs of chronic ulcer, unrelieved by a single medical treatment, demand operation.

3. Ulcer in a patient past 35 years of age should be excised. If its location is in the pylorus and a narrowing results, a gastro jejunostomy should be made. In certain cases, because of adhesions or size of the induration, pylorotomy is indicated.

We must remember that surgery can relieve a mechanical defect or potential cancer resulting from foregoing disease, it cannot remove the cause and therefore prolonged postoperative care should be aimed at re-establishing the normal gastric digestion. Patients are advised to practice great care as to gastric hygiene, under definite medical supervision, in order that a re-establishment of normal conditions of secretion may occur.

112 *Lennox Bldg.*

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**The Medical School and the State.**—In an address delivered at the dedication of the Robert W. Long Hospital of the Indiana University (*Journal A. M. A.*, Aug. 22, 1914), H. S. Pritchett, President of the Carnegie Foundation, New York, holds the view that the medical profession is a quasipublic one, that in modern scientific medicine all sectarian divisions are meaningless, that the rise of preventive as well as scientific medicine has enlarged the state's obligation to oversee and control the public-health question, including the practice of medicine and medical education. A state board or commission with its executive officers will doubtless be the organization through which the state authority will be exerted, and the university only furnishes the chance to put scientific ideals into practice. There should, therefore, be the closest correlation between the state board of health and the university medical school. The public should be educated to recognize these conditions, and Pritchett says, in a state like Indiana, a single school of modern medicine is the true solution of the problem. He condemns the commercial medical schools which exist, and points out how their claims of service to the public are fictitious.

## IMPURITIES THAT MAY OCCUR IN NITROUS OXIDE\*

By HOWARD D. HASKINS, M. D., Cleveland

This investigation was undertaken at the suggestion of Doctor A. R. Warner, Superintendent of Lakeside Hospital. He had observed that "smoky" nitrous oxide gas was produced whenever the retort of the gas apparatus at the hospital was overheated. The visible vapor must necessarily be some impurity. The apparatus as improved by Doctor Warner removes all impurities, so that no ill effects of nitrous oxide administration have been observed for some time.

When ammonium nitrate,  $\text{NH}_4\text{NO}_3$ , is heated, nitrous oxide and water are produced. Of the nitrogenous compounds that are known, the following might *conceivably* be produced by abnormal decomposition of ammonium nitrate: hydrazin,  $\text{NH}_2\text{-NH}_2$ ; hydroxylamin,  $\text{NH}_2\text{OH}$ ; hydrazoic acid,  $\text{NH-N}_2$ ; nitrous acid; ammonia and nitric acid. These impurities can readily be tested for. Hydrazin and hydroxylamin reduce alkaline copper solutions (Fehling's or Benedict's reagent). Hydrazoic acid gives a white precipitate with silver nitrate solution.

The drip water from the condenser of the gas apparatus gave no test for hydrazin, hydroxylamin, or hydrazoic acid. It contained copper, dissolved from the fittings of the apparatus. On evaporation a large amount of ammonium nitrate crystals was obtained. A little nitrite was present in this drip solution. The distillate obtained by distilling the drip was exactly neutral.

The dilute sulphuric acid through which the gas is bubbled for the purpose of purification was also examined. It contained ammonia and a trace of nitrous acid, but no hydrazin, hydroxylamin, or hydrazoic acid.

Freshly prepared unpurified gas was next tested. *Smoky* gas was taken directly from the retort and bubbled for three hours through Benedict's solution, and for another three hours through silver nitrate solution. No evidence was secured of the presence of hydrazin, hydroxylamin, or hydrazoic acid. In another experiment gas was passed in a similar manner for four hours through a bottle filled with particles of clean iron. Water condensed in the bottles. This drip was filtered and evaporated;

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\*From the Laboratory of Physiology and Biochemistry, Western Reserve Medical College.



the residue gave a good test for iron. Therefore, a soluble salt of iron was formed by the action of acid present in the gas.

Further evidence of acid formation was furnished by the decided corrosion of the aluminum of the retort and condenser. The presence of copper in the drip also indicates acid action.

A final experiment was performed for the purpose of determining whether the acid impurity is nitric acid. Pure ammonium nitrate was prepared from C. P. nitric acid and C. P. ammonia. This was dried, and put into a glass retort. A thermometer was suspended in such a way that it would register the temperature of the nitrate when melted. No condenser was used, the tube of the retort acting as an air condenser. On heating, a little distillate was secured before the temperature of the nitrate reached 200 degrees C.; this was perfectly neutral. Therefore the retort (and the nitrate) contained no free nitric acid. When the temperature on further heating reached 250 degrees, fumes, i. e., a visible vapor, began to be given off. Heat was applied strongly enough to cause the fuming to continue. By this means a small amount of distillate was secured which was strongly acid.

This distillate contained some ammonium nitrate, and therefore a special method of testing for free nitric acid had to be devised. The acidity was determined by titration, being almost exactly one-twentieth normal. A dilute acid solution was then prepared from pure nitric acid of such a concentration as to have the same titration acidity as the distillate. The two solutions were next saturated with ammonium nitrate; and to equal volumes of each was added the same amount of dilute methyl violet, in accordance with Sørensen's method for determining the true acidity (i. e., the hydrogen ion concentration), by the use of indicators. The green color obtained in both solutions was the same, proving that these two acid solutions, which had the same titration acidity, also had the same true acidity. Therefore it follows that the acid in the distillate must have been nitric acid. There is no reason to suppose that any other acid having the same acid power as nitric acid could be produced from ammonium nitrate. The distillate gave no test for hydrazoic acid.

Evidently what happened in the retort when the nitrate was overheated was that part of the salt was dissociated into nitric acid and ammonia gas. The tube of the retort, being hot, did not

allow as much ammonia as nitric acid to be taken up by the drip water; in consequence relatively more ammonia escaped into the air than nitric acid. This resulted in the presence of more acid in the distillate than could be neutralized by the ammonia present.

In a closed apparatus there is no reason why the acid and ammonia should not recombine when cooled, forming ammonium nitrate and thus leaving no ammonia or acid in the free state. If, however, the gas apparatus is metallic, some of the nitric acid is consumed in forming a salt with the metal, and the corresponding amount of ammonia cannot recombine with acid, so that it is left in the free state in the nitrous oxide. This poisonous gas must be removed by bubbling the nitrous oxide through dilute sulphuric acid.

### Conclusions

1. The impurities present in nitrous oxide when too high a production temperature is used are ammonia and nitric acid, set free by heat dissociation of ammonium nitrate.

2. When produced in a metallic apparatus, the cooled impure gas contains free ammonia.

3. As low a production temperature as practicable should be used.

1353 East 9th St.

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**Special Anesthesia Supplement.**—Recent years have been marked by some important contributions to the theory and especially to the practice of surgical anesthesia, but there has lacked what is now quite needed for the further scientific development of this alongside the other departments of surgery—a journalistic medium and editorial mouthpiece.

*The American Journal of Surgery* will be expanded to meet this need. Beginning with the October issue and quarterly thereafter, this journal will publish a 32-page supplement devoted exclusively to Anesthesia and Analgesia.

This supplement will be a complete journal within a journal, containing editorials, contributed articles and communications, abstracts, transactions of societies and book reviews.

The supplement has been adopted as the official organ of the American Association of Anesthetists and the Scottish Society of Anesthetists and it will also publish the transactions of other like societies.

The editor of this supplement will be Doctor F. Hoeffler McMechan, of Cincinnati, one of the founders of the American Association of Anesthetists and a charter member of the New York Society of Anesthetists.

He will be assisted by a staff of well-known specialists in Anesthesia, among whom we would mention: Doctor James T. Gwathmey, New York; Doctor Willis D. Gatch, Indianapolis, Ind.; Doctor William Harper De Ford, Des Moines, Ia.; Doctor Charles K. Teter, Cleveland, O.; Doctor E. I. McKesson, Toledo, O.; Doctor Isabella C. Herb, Chicago, Ill., and Yandel Henderson, of Yale University.



**OFFICE PRACTICE IN RECTAL DISEASES**

By S. ENGLANDER, M. D., Cleveland

It is due to the excellent work of Gant in New York, Hirschman in Detroit and Thomas C. Martin of Washington, formerly of Cleveland, that minor surgical operations on the rectum (and according to one of these up to 80 per cent) can be done under local anesthesia. The ardor of that particular author, I believe, has cooled somewhat recently, but it is a fact that in the great majority of minor rectal surgery the patient can be relieved during one's consultation hours and avoid the necessity of laying up in the hospital for one or two or more weeks. The laity, too, largely through the influence of quackery, have become imbued with the idea that practically all rectal operations can be done at one's house or at the physician's office and therefore hesitate when the subject of general anesthesia is mentioned and residence in the hospital. The latter fact has had both its good and bad effects; imagine a patient with a large pelvic tumor causing stasis of the hemorrhoidal veins, hemorrhoids and operation under local anesthesia; a carcinoma of the rectum, interference with circulation in the rectum; operation under local anesthesia later, perhaps, hemorrhages or metastasis and death. Such occurrences can happen only when a careless rectal examination has been made or by the desire of a quack to gain his end. On the other hand, what an advantage to the business man, to the mother with her family, etc., to have done what can be done under local anesthesia, necessitating only a short stay from one's vocation and after a short rest, a return thereto.

The choice of local anesthetic to be used depends to a great extent upon the individual operator, each one using the one which in the past seems to have given him the most satisfactory service. Alypin, Stovain, Cocain, Novocain, Beta-eucain, salt solution, as well as sterile water have given good results. In the hands of most proctologists, cocain and its various derivatives have given most satisfactory results, probably because of the fact that they are the oldest and best known of these drugs. However, the alarming symptoms sometimes caused by cocain and the fact that it is non-sterilizable have forced those interested in this field of medicine to look elsewhere for suitable agents. A 1 or 2 per cent solution is usually used to anesthetize the sphincter, a 1/10 to 1/4 solution to anesthetize the parts to be operated upon.

Beta-eucain has been of late substituted very often for the more dangerous cocain, and it further possesses the advantage of being sterilizable.

Sterile water as an anesthetic has been recommended by Gant, but its introduction to the point of anesthesia has been rather painful and has not been generally adopted. It acts by pressure and so much of the solution is required that it distorts the tissues and makes the operation rather difficult. About the same can be said of salt solution, except that the sodium chlorid does seem to possess some anesthetic effect. Of late years the use of quinin urea hydrochlorid met with considerable success and is highly recommended particularly by Hirschman of Detroit.

In a paper published in the *Buffalo Medical Journal* in '96, Griswold gave the results of numerous experiments and claimed for quinin a local anesthetic action. Later (1907), in a paper published by Thibault in the *Journal of the Arkansas Medical Society*, first called attention to the local anesthetic effect of quinin and urea hydrochlorid. It was found that in 1 to 3 per cent solution the anesthesia sometimes lasted for several days, but it caused an oedema of the tissues which interfered with healing and often left an induration for a considerable length of time. It must also be remembered that quinin urea is absolutely non-toxic, but probably its greatest advantage is the prolonged anesthesia and its prevention of the agonizing pain produced during and after the first bowel movements after an operation. According to Hertzler, who did considerable work with this agent when used in solution of 1 per cent or stronger, it has a pronounced hemostatic effect by causing the deposition of fibrinous exudate about the vessel walls and thus preventing post operative oozing. Doctor Martin, of Philadelphia, has used the drug as an ointment (of a strength of 10 or 20 per cent) after major operations on the rectum. It has prevented post operative pain and also in anal pruritus where the skin was painful it did not prevent the itching, but it did alleviate the pain. In opposition to operative procedure in ano-rectal conditions under local anesthesia and according to his own words "belittling his specialty" stands Doctor Joseph Matthews, the dean of American proctologists. He believes that all operations on the anus and rectum are important enough and to be properly painstakingly done require the use of a general anesthetic. I am now using to a great extent a preparation after the formula of Doctor Metzenbaum, who has



used it considerably in nose and throat work and found it perfectly satisfactory. This preparation in addition to 1/10 per cent quinin urea and a very small per cent of cocain and chloretone contains adrenalin solution about 1:50000, and produces very satisfactory and prolonged anesthesia.

The technique as formerly employed by Tuttle and quoted in Earles' Diseases of Anus, Rectum, and Sigmoid is as follows:

"The patient is given a brisk cathartic 24 hours before the operation; and on the morning of the operation and several hours before he is given a large soap enema until the bowel contents are washed clean; one-half hour before he is given morphin by mouth. The patient is put in the Sims' left lateral or extreme lithotomy position. A drop of pure phenol or ethyl chlorid spray is placed in a spot one-half inch behind the posterior commissure of the anus and a few drops of the solution are quickly injected subcutaneously, a thin and very sharp hypodermic needle about two inches long having been previously selected. The index finger of either hand is then introduced and hooked around the internal sphincter, thus dragging it down into apposition with the external—the needle is then slowly pushed upward, outward and forward, being careful to avoid the wall of the rectum, meanwhile slowly injecting along the tract of the needle until the sphincters are reached at a point about one-half inch in front of the posterior commissure, where about 5 to 10 min. of the solution are injected—the needle is then withdrawn as far as the skin and the procedure is repeated on the opposite side. After two or three minutes Earles' single blade speculum is introduced into the anterior commissure of the rectum and with this as a point of resistance the sphincters are gently massaged and stretched to any desirable extent. I do not claim that the sphincters can be divulsed or the perirectal tissues torn by this method without pain, but I do maintain that the sphincters can be sufficiently stretched for all practical work under local anesthesia. After the sphincter is stretched the hemorrhoids or ulcers are anesthetized with a mild solution (1/8 to 1/10 per cent cocain or beta-eucain) as the anesthesia has not extended to the cutaneous margin of the anus in the anterior quadrants. In fissure no second puncture is necessary, as the first usually suffices. The propriety and advisability of doing many of these operations under local anesthesia in the office is very questionable unless the patient is allowed to recline for an hour or more after the operation.

In their writings upon local anesthesia in ano rectal diseases, the various authorities have stated that only the conditions of the muco cutaneous junction can be operated successfully without stretching the sphincters, but in using quinin urea I have operated in not too extensive internal hemorrhoids without sphincter stretching and the first bowel movement was not accompanied with a great deal of pain. Now as to the diseases which can be treated under local anesthesia. External hemorrhoids, whether thrombotic or merely skin tags. External hemorrhoids can and I believe should always be operated under local anesthesia and without anesthetizing the sphincter. The hemorrhoids are injected to the point of blanching and after waiting two or three minutes, the hemorrhoid is then excised.

In all cases of hemorrhoid, whether external or internal, it is always a good plan to mark the outer border of involved tissue before infiltration, with iodine or methylene blue or some other such agent as the anesthetizing fluid distorts the field of operation in such a way that it makes it often difficult to recognize its outer limits. The acute thrombotic hemorrhoid may simply be shelled out after anesthetizing.

Whether a fistula in ano should be operated under local anesthesia or not is often a very hard matter to decide with certainty. Even a simple straight fistula which extends above the sphincters, or a fistula with more than one cutaneous opening or one with multiple branches, these all should be operated under general anesthesia. Where there is the least doubt as to the course or number of branches, local anesthesia should never be attempted. The external opening may be injected with bismuth and then X-rayed, which may help us out of a ticklish situation. Methylene blue injected into the fistulous tract may be seen coming out through multiple openings in the rectum, this, however, will only help as an affirmative sign; the fact that the dye does not appear through multiple openings does not exclude the possibility of another esp. a blind tract. Fistulae communicating with other organs should never be operated under local anesthesia.

Perineal abscesses only when limited in area and not of too long duration thus giving the pus an opportunity to burrow into the none too resistant tissues of the ischio-rectal space or when situated below the Levator Ani muscle, then only can these abscesses be operated in the office and under local anesthesia.



**Cryptitis:** As the inflammation extends from the region of the sphincters it is advisable to anesthetize them. Anesthetize the crypt and if there be a sentinel pile that also, then excise or cauterize the entire inflamed area. Inflamed or hypertrophied anal papillae the saw-tooth-like affairs at the ano rectal junction when hypertrophied often give the sensation of not having finished after a thorough bowel evacuation. They may also give rise to indefinite pains and be the cause of very resistant pruritus. The papilla is thoroughly anesthetized at its base then snipped, snared, or cauterized off.

**Fissure in Ano:** Should the fissure be only a superficial one, it is sufficient to anesthetize and stretch the sphincter, but when the fissure has been of long standing and the edges have become hard and indurated, it is necessary to anesthetize the fissure itself and dissect out the indurated area.

Simple or single ulcers of the anal canal when not due to some systemic condition can be operated on by local anesthesia. The mucous membrane around and beneath the ulcer is infiltrated and the ulcer is then excised, the excision being made in such a manner as to include the healthy tissue surrounding.

In all operations about the anal canal one should always be cautious to make the internal extremity of the wound shallower and narrower, so that healing may begin there and granulate slowly towards the surface. This little precaution will often save one a long and tedious, complicated convalescence.

Scar tissue about the rectum if not too extensive and if one can make sure of its extreme limits comes within the limits of the office treatment of rectal diseases.

In concluding, I believe that local anesthesia has earned for itself a well-deserved place in anal surgery, particularly in the feeble and the old, whose local trouble is not very grave, but whose general condition does not permit of general anesthesia, but it must be warned against that before operating under local anesthesia one must be sure that the condition is *purely* local and not due to some pathological condition further up in the intestinal tract, or liver stasis, constipation must be corrected, etc. Furthermore, one should recognize in operating in purely local conditions that the condition be not too extensive, so that after the operation has begun it may give rise to apprehension on the part of both the operated and the operator. I am referring to extensive fistula.

## MERCURIC CHLORID POISONING—A CASE HISTORY

By C. W. RACE, M. D., Evanston, Illinois

On March 13, 1914, there occurred in the city of Evanston an unusual case of mercuric chlorid ( $\text{Hg Cl}_2$ ) poisoning. The history of the case follows: Mrs. C., aged 38 years, white, married, took seventy-eight (78) tablets of mercuric chlorid, each containing 1.41 grains of that salt. Thirty-five minutes after the ingestion of these tablets I saw her at her home. There were no grave symptoms present, in fact, she complained of little except a burning in the throat and stomach and there had been no vomiting.

Emesis was induced by the use of mustard and the mechanical irritation of the pharynx. The vomited material was in appearance such as would be expected from this form of emetic and contained no visible tablets. Egg albumen was given in divided doses until the washings returned clear, about twenty fluid ounces being used before this was affected.

The patient was then removed to St. Francis Hospital, where three and one-half ounces of a hot saturated solution of magnesium sulphate was administered; in less than two hours free catharsis was established which continued for eighteen hours.

Following this treatment no abdominal, renal or constitutional symptoms of importance developed. The patient was able to leave the hospital on March 16th.

The case is interesting in that it proves that egg albumen is a true antidote for  $\text{Hg Cl}_2$  poisoning and that thirty-five minutes is not necessarily a sufficient time to render a case hopeless. An analysis of the vomitus showed a lethal per cent of mercury.

Judging from this experience, I believe that the poison first excites the glands of the stomach to excrete large quantities of mucus which for a time protect the walls of the stomach and hinder absorption.

Should the poison once gain entrance to the blood, I believe we have no antidote which will prevent the nephritis, neither do I have faith in any surgical procedure for its relief.

525 Main Street.



## THE FATE IN THE ORGANISM OF THE DEGRADATION PRODUCTS OF PROTEIN

By HAROLD H. BIGGS, Western Reserve Medical School, Cleveland.

The earlier work on the fate of the products of protein digestion appears to be most readily grouped around the different explanations of the fate of ingested protein which have served as working hypotheses. As in the limits of this paper it will be impossible to review the work which supports or antagonizes these hypotheses, we shall merely formulate them and proceed to the more recent work in this very broad field. These hypotheses may be formulated as follows:

1. The ingested proteins are absorbed and incorporated into the body without undergoing any marked chemical change.
2. The food proteins are first hydrolyzed in the alimentary tract; the products of digestive hydrolysis are then absorbed into the blood and carried to the tissues.
3. The products are deaminized in the wall of the intestine before entering the circulation.
4. The products are synthesized into serum protein before entering the circulation. The serum proteins thus formed serve as nourishment for the tissues in general.

Thus the real evidence, the failure to identify the products of protein digestion in the blood, has been purely negative. However, this evidence has been decisively eliminated by the work of Van Slyke and Meyer, of the Rockefeller Institute, whose results were published in July, 1912. Using the nitrous acid method for determination of amino groups under precautions which render it specific for  $\alpha$ -amino-acids, they found that the latter are always present in the blood of dogs, the amount of amino-acid nitrogen being 3 to 5 mg. per 100 c. c. of blood in animals after twenty-four hours' fasting. After a meal of meat, the figure rose to 10-11 mg. in the same animals. The results not only dispelled the negative evidence on which the resynthesis hypothesis had been built, but afforded positive proof that the products of protein digestion enter directly into the circulation. The amount of amino-acid nitrogen present at any one time in the blood is small, because amino-acids which enter it leave it with great rapidity—being broken up by the tissues. Further work was done by Abderhalden and Lampé, who detected the amino-acid nitrogen of the blood by the ninhydrin reaction, the intensity of the color de-

veloped affording comparative results. Their results confirmed those of Van Slyke and Meyer.

From all this work it appears that the positive results of previous work on this problem can be condensed into the following statement: Ingested proteins are hydrolized in the digestive tract, setting free most, if not all, of their amino-acids. These are absorbed into the blood-stream, from which they rapidly disappear as the blood circulates through the tissues.

We shall now try to see what becomes of the amino-acids when they leave the circulation. Are they decomposed in the blood? Are they at once synthesized into new proteins? Are they chemically incorporated into the complex molecules of the tissue proteins? Or are they merely absorbed by the tissues in general, or by certain tissues in particular, without undergoing any immediate change?

The experimental work goes to show that the disappearance of intravenously injected amino-acids from the circulation is not the result of their destruction, synthesis, or chemical incorporation into the cell proteins. The acids are merely absorbed by the blood from the tissues, without undergoing any immediate chemical change. For the experiment, a male dog of 9 kg. weight was used. A sample of 25 c. c. of blood was drawn from the right femoral artery. The right gracilis muscle, a lobe of the liver, a short section of the small intestine, and the right kidney were removed and coagulated for determination of amino-nitrogen. There were then injected into the right femoral artery, 150 c. c. of a solution of the amino-acids obtained by hydrolysis of casein. The 150 c. c. injected contained 4.06 grams of amino-nitrogen. The duration of the injection was 30 minutes. Half an hour after it had been finished, another sample of 25 c. c. of blood was drawn, the dog was killed by bleeding, and samples of the tissues again taken. The results of the experiment were as follows: Of the amino-nitrogen injected, approximately 5 per cent remained in the circulation one-half hour after the injection, and 11 per cent had been excreted in the urine. If the remaining 3.41 grams of amino-nitrogen injected had been absorbed by the tissues evenly throughout the body, the average increase per 100 grams of tissue would have been 40 mg. The increases found were: In the muscles, 27 mg.; liver, 60 mg.; kidney, 60 mg.; intestine, 50 mg. In the case of the muscles at least a fairly definite saturation point exists, which sets the limit to the amount of amino-acids that can be ab-



sorbed. The capacity of the internal organs is more elastic. The absorption of amino-acids from the circulation by the tissues, although extremely rapid, is never complete; and the amino-acids of the blood appear to be in equilibrium with those of the tissues. The process by which the amino-acids are taken up and held by the tissues is probably either by mechanical absorption or by the formation of loose molecular compounds between the amino-acids and the tissue proteins.

The duration of the stay of the amino-acids in the various organs and the nature of the changes which are responsible for their final disappearance next engage our attention. They do not long remain unaltered in the body. Levene, working with Kober and Meyer, has found, for example, that alanin and arginin when fed to a dog are excreted almost completely in the form of urea in the next twenty-four hours. Also, when protein is added to the diet of an animal already in nitrogenous equilibrium, an increased excretion of urea follows, which nearly corresponds to the amount of nitrogen in the added protein.

Further work by Van Slyke and Meyer has shown that the absorbed amino-acids (glycocoll, hydrolyzed casein, artificially digested flesh) disappears rapidly from the liver; but less rapidly from the kidney, intestine, pancreas and spleen. Whether the process in these latter organs proceeds as slowly as from the muscles has not yet been determined. The disappearance of amino-acids from the liver is accompanied by an increase in the urea of the blood. In the light of all the evidence we have at present, it would seem that all tissues have the power to take amino-acids from the blood-stream. This power, however, is limited. As we have seen, they disappear most rapidly from the liver. This organ continually desaturates itself by metabolizing the amino-acids that it has absorbed, and consequently maintains indefinitely its power to continue removing them from the circulation, so long as they do not enter it faster than the liver can metabolize them. When the entrance is unnaturally rapid, or when the liver is sufficiently degenerated, the kidney assists by excreting them unchanged. Death may result when the above agencies for preventing undue accumulation of protein digestion products are overtaxed. Each tissue uses these amino-acids to synthesize its own protein.

The examination of tissues taken from fasting dogs shows that, if anything, there is an increase in the free amino-acids of

the tissues during fasting. The amino-acids appear, therefore, to be intermediate steps, not only in the synthesis, but in the breaking down of body proteins. Autolysis seems to afford the chief source of the free amino-acids in the fasting body. The failure to increase the free amino-acid content of the tissues by high protein feeding indicates, furthermore, that when nitrogen is retained in the organism, it is not, to an appreciable extent, as stored digestion products, but rather as body protein.

Folin and Denis, of the Harvard Medical School, have also done considerable work on protein metabolism from the standpoint of blood and tissue analysis. Their work also shows the fallacy of the resynthesis hypothesis, which, based on negative results only, has no value after the presence in the blood of amino-acids absorbed from the intestine has been positively demonstrated. They were able to trace urea, glycocoll and pancreatic amino-acid mixtures not only into the blood, but also into the general tissues of the body. Their results indicate that practically all the absorbed nitrogen can be accounted for; so the hypothesis of immediate protein synthesis in the intestinal walls is untenable. In their earlier work they were bent on showing and emphasizing the fact and the speed of the absorption of amino-acids and consequently their experiments were of short duration. The result was a rapid absorbent unaccompanied by any unmistakable urea period—2 to 4 hours—and proved that the absorption of amino-acid is, after a while, accompanied by the formation of urea. So far as we yet know, the urea-forming process is one characteristic of all the tissues, and by far the greatest amount of the urea is therefore probably formed in the muscles. The food protein reaches the tissues in the form of amino-acids, and those amino-acids which are not needed for the rebuilding of broken down body material, are not rebuilt into either protein or protoplasm, but are broken down and their nitrogen converted into urea. The question next arises: Does a certain total concentration of amino-acid nitrogen result in a urea formation, or do the tissues maintain a separate nitrogen equilibrium on the basis of each individual amino-acid? The simplest tentative hypothesis concerning the urea formation out of the surplus food protein seems to be that each tissue maintains a certain supply of each amino-acid, and the urea-formation from any particular amino-acid depends, so to speak, on the "partial pressure" of that particular acid.



Abderhalden and Lampé, in a review of the work done by Folin and Denis on the absorption of amino-acids, peptones, etc., admit that their analytical methods are new, but considers their results as neither new nor particularly illuminating. Abderhalden remains avowedly a supporter of the immediate regeneration hypothesis as a feature of absorption. Folin and Denis hold that their experimental results transform into a demonstrable fact the theory of amino-acid absorption unaccompanied by immediate deamination or protein regeneration. In speaking of the matter they say: "Abderhalden constantly overlooks the *quantitative* aspect of our results. Since there is not any reason, direct or indirect, theoretical or experimental, for assuming that our quantitative results on the absorption and distribution of amino-acids are less valid than our corresponding results with urea, creatin and creatinin, we regard the qualitative tests demanded by Abderhalden as interesting and valuable to be sure, but nevertheless only as merely confirmatory. In the case of one amino-acid, tyrosin, we did substitute a qualitative test, and by its help were able to trace its passage into the blood and muscles, a fact which Abderhalden seems to have overlooked."

In commenting on the above, Abderhalden says that the colorimetric method for the estimation of tyrosin used by Folin and Denis gives values which are much too high. He says further: "I have been able to show that tryptophan, hydroxy-tryptophan, and hydroxyprolin give the same color reaction as tyrosin, thereby proving that Folin and Denis were in error in stating that they had found a quantitative method for the estimation of tyrosin. Against the conclusions of Folin and Denis, we have raised the following objections: Folin and Denis have not proved that the non-coagulable nitrogen was actually in the form of amino-acids, nor have they in any way shown that the amino-acids are not united to form protein in the wall of the intestine. In order clearly to separate facts from mere inferences, Doctor Lampé and I wished first of all to determine whether compounds containing amino-groups, but non-coagulable and giving no biuret reaction, were actually present in blood serum. We have furnished the proof of this. But in order to prove satisfactorily that digested protein reaches the blood solely in the form of amino-acids, it is necessary to identify these amino-acids as such, and estimate them individually."

As regards the uric acid, urea and total non-protein nitrogen

in human blood, Folin and Denis have again done much experimental work. The investigation of the non-protein nitrogenous constituents of human blood is especially interesting from this point of view because of its possible clinical bearings. So far as the uric acid is concerned, we have heretofore had to remain satisfied with the theoretical deduction that it must always be there because it is rather abundant in the urine, and because its presence in the blood in cases of gout, leukemia and lead poisoning has been demonstrated by a number of different investigators.

In the method which Folin and Denis have advanced for determining the uric acid in human blood, they have shown that there is, as a matter of fact, enough uric acid in normal blood to make its quantitative determination almost as simple as the determination of the urea or the total non-protein nitrogen. All three determinations can be made without requiring more than 20 to 30 c. c. of blood. They have, therefore, in a combination of these three determinations practically a new system of blood analysis—certainly one well worth trying out on human blood for clinical purposes. Their first survey of the uric acid in human blood covered 38 cases—all newly admitted patients at the Massachusetts Psychopathic Hospital. Of these, 22 fell between 1 to 2 milligrams of uric acid per 100 grams of blood, which they believe to be well within the normal variations. They found further that human blood contains several times as much uric acid as does the blood of any other animal they have had the opportunity to examine.

Their figures for non-nitrogen vary between 22 and 26 milligrams, and for urea nitrogen between 11 and 13 milligrams per 100 grams of blood. Such a narrow range of variation is remarkable. It would seem that the perfectly normal kidney maintains a remarkable constant level of non-protein nitrogen and urea nitrogen in the blood. A "perfectly normal kidney" appears, however, to be the exception rather than the rule in any kind of clinical material. The corresponding values obtained from syphilitics—63 cases cited—made an appalling contrast. There are but 13 whose values are not higher than the normal given above. That this impaired efficiency of the kidney is not peculiar to syphilis, is shown by the corresponding values obtained from the insane. Out of 21 cases, only 8 gave normal nitrogen and urea figures. Out of 11 cases, of "chronic nephritis," not a single one gave normal urea or non-protein figures. The lowest figure



obtained from nephritic blood is half again as large as the highest obtained from normal blood. On the other hand, some of the nephritic patients carry no greater accumulation of waste nitrogen in the blood than that found in some of the patients afflicted with syphilis or insanity. From these figures we learn that there is apparently no relationship between the amount of uric acid and the amount of urea or total non-protein nitrogen in human blood. This generalization is of clinical value as well as physiological importance. The urea and total non-protein nitrogen in the blood must in the main be inversely proportional to the general efficiency of the kidney, since the kidney represents practically the only outlet for the nitrogenous waste products. The significance of the uric acid is less clear. In the absence of some other plausible explanation, it, too, should occur in the blood in amounts inversely proportional to the ability of the kidney to remove it. This explanation has seemed incorrect to clinicians because gout and general kidney inefficiency do not go hand in hand. It was far-fetched physiologically because it assumed a specificity of the kidney towards different waste products which was not warranted by anything that was known concerning the secretion of urine. The discovery of the genetic relationship existing between uric acid and allantoin in the urine has also cast doubt on the more modern explanation borrowed from the current teachings with regard to the destruction of uric acid within the body. Given some region, some tissue or organ, capable of destroying uric acid, and partial stagnation due to kidney inefficiency would result in the circulation of the uric acid laden blood over and over again through such a region, and the accumulation of uric acid would be prevented. Allantoin is regarded as a final waste product whose precursor is uric acid. The urine of animals contains sufficient allantoin to make up for the uric acid which is practically absent. On the other hand, the practical absence of allantoin in man has at once raised the issue whether uric acid is destroyed within the human organism. Wiechowski, Liven and Hunter, and Givens have taken the position that uric acid is probably a final waste product in man, and is not destroyed by any human tissue. Frank and Schittenhelm adopt the older view that the destruction of uric acid within the human organism is quite extensive.

**The Annual State Board Statistics.**—The *Journal A. M. A.*, May 23, publishes the state board statistics for 1913. This is the eleventh annual presentation by the Council on Medical Education of the results of state board examinations. The educational statistics presented show that there were 99 American medical colleges granting degrees in 1913. These colleges graduated 3,981 students last year. Of these, 87 per cent took examination for license during the year. Three hundred and fifty-three, or 10.2 per cent, failed. A study of totals and percentages as compared with previous years is of interest. The total examined and the percentage of failures, as shown in the tables, are the lowest since the compilation of these statistics was begun in 1904. The total examined in 1913 showed a decrease of 1,600 below 1906, when 8,035 candidates were examined. By all methods—examinations, reciprocity, under exemption, etc.—6,501 physicians were licensed during 1913, or 222 less than 1912, and 1,364 less than in 1906, when 7,865 physicians were licensed. Altogether 6,435 were examined last year, as compared with 6,879 in 1912 and 6,960 in 1911. Of those examined, 18.6 per cent failed as compared with 20.5 per cent in 1912 and 19.9 per cent in 1911. Of the graduates examined in 1913, 2,746, or about 56.4 per cent, took their license examinations in the states where the colleges from which they graduated were located. Of this number 11.9 per cent failed on the average, whereas, of the 1,420 candidates examined in other states, 18.6 per cent failed. This would indicate that, as a rule, the student's chances of passing the license examinations are better if he stays in the college's home state. One table gives the results for groups of colleges located in each state. It shows what states are furnishing the largest number of physicians, and the failure percentages indicate what kind of training these colleges are furnishing so far as may be judged from the failures of their graduates before the state boards. These statistics show that the states harboring low-grade colleges are themselves the recipients of the great majority of the poorly trained output of those schools. Other tables permit a comparative study of medical colleges of much value in connection with investigations concerning them. For the group of colleges located in each state the total number of graduates examined in all states is shown, together with percentages of failures, and the rank of each group according (1) to the number examined and (2) to the success of the graduates at the examination. Another table furnishes an interesting study of the larger colleges and allows a comparison between colleges of equal size. A classification of medical colleges based on the failures of their graduates at state board examinations is also made. In making comparisons based on the statistics given in these tables, several factors should be carefully considered. For instance, in regard to medical colleges, occasionally those poorly equipped may have less than 10 per cent of failures, while well-equipped and fairly good colleges may occasionally have between 10 and 20 per cent of failures. It is seldom, however, that a good college will year after year show failure percentages over 10 per cent, which is true regarding most of the colleges in the third class (having above 20 per cent of failures). The statistics furnished with this report are accurate and reliable, and are worthy of careful attention. Many important deductions other than those mentioned above may be drawn from them.



# The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and  
THE CLEVELAND JOURNAL OF MEDICINE

## MONTHLY

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Short notes upon clinical experiences or reports of interesting cases will be welcomed by the editors.

Original articles are accepted for publication by this Journal only with the distinct understanding that they are contributed solely to this Journal and will not be published elsewhere as original.

## EDITORIAL

“Made in Germany.”

The present war is bringing more and more acutely to our minds the dependency of America upon Europe and especially upon Germany for our scientific supplies. At present certain photographic materials are very scarce and coal-tar dyes used by our cloth manufacturers are not to be had. Among drugs,

aspirin has gone up in price from two dollars and fifty cents to eight dollars a pound wholesale, the supply of Salvarsan and Neosalvarsan is practically exhausted and such a common drug as citric acid has entirely disappeared from the market. The lemons grown in California are shipped to Europe, the citric acid is manufactured from them and then is returned to us bearing the familiar label, "Made in Germany."

Is not this the opportune moment for certain of our firms to step in and begin the manufacture of high-class chemicals on a clean and wholesome basis? On this point we agree with a recent editorial in the *J. A. M. A.* (Aug. 22, 1914, p. 692) that, if it is to be attempted, then it must be done well; and surely there is a pressing demand. Of those patented articles manufactured in Germany immediate changes should be made in our patent laws to make them correspond with foreign countries, i. e., the holders of the patent must begin the manufacture of the article in some country within a reasonable length of time or forfeit their patent. It would do no good to suspend the patents for the time, as has been suggested, for no sane capitalist is going to invest money in a proposition that would be cut off as soon as the war is over—a week, a month, or a year, as the case may be. The only sure method is to have the patent laws changed, *statt*, and the American Pharmaceutical Association, the Council on Pharmacy and Chemistry, medical societies and medical men should adopt resolutions, notify Congressmen and the President of this country and take such other steps as will cause a revision of the laws in the quickest possible time.

We, as Americans, are being made to suffer all too much as it is because of this world war, laying the blame on no particular nation, and Congress should do everything in its power to make the burden as light as possible. In closing, would it not be fitting for the Cleveland Academy of Medicine to be one of the first to help forward this urgent need?

H. N. C.

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**Cleveland to Seek Germany's Lost Trade.**—The Chamber of Commerce will endeavor to bring to Cleveland some of the Central and South American trade which Germany has been compelled to give up on account of the war. A committee of the chamber will issue a bulletin to define plans in regard to southern trade next Tuesday, according to Edwin Baxter, industrial secretary of the chamber. A special council committee will meet next week to consider export trade.



## THE MEDICAL STAFF OF SAINT LUKE'S HOSPITAL HONORS THE LATE DOC- TOR JOSEPH FRANKLIN HOBSON

We, the members of the Medical Staff of Saint Luke's Hospital, deploring the death of our friend and colleague, Doctor Joseph Franklin Hobson, wish hereby to express to his family and to the public, and to commemorate by placing upon our records, our regard for his work and worth as well as our regret of his removal from our midst. Through many years of association, we have found Doctor Hobson loyal to our organization and energetic in the performance of his duties as Chief of Staff and his labor in behalf of Saint Luke's Hospital. We shall never forget his constant interest and generosity toward this institution. His steadfast effort and ultimate aim in the construction and development of Saint Luke's Hospital are known to all and especially appreciated by his colleagues.

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## DEPARTMENT OF THERAPEUTICS

Conducted by J. B. McGee, M. D.

**Hemoptysis:** In the *American Journal of Medical Sciences* for June, Francis Marion Pottenger considers the treatment of hemoptysis. He believes that hemoptysis may be divided into these classes: 1. A frank hemorrhage where a vessel of some size is opened, and the blood flows out freely. 2. A bleeding which comes on coincident with the expulsion of a necrotic mass. 3. A type when there is no distinct quantity of blood, but the mucus raised is mixed with color, giving it a characteristic dull pinkish color. This he considers as coming from the small vessels in the wall of a cavity is not serious and requires no special treatment. 4. The type of hemoptysis where the patient keeps expectorating mouthfuls of blood for several days, sometimes for a week. He looks upon this type as being due to congestion, much the same as we see in pneumonia, and heart lesions. This type does not prove fatal, but serious damage seems to occur when it continues for a long time, whether the hemorrhage itself has any part in the deleterious result, or whether it is due wholly to the condition which produces it, is open to some question. When we consider the various drugs which have been used in the treatment of hemorrhage, and take into account their supposed action on the pulmonary circulation, we must either conclude that their action is practically *nil*, or that nature is able to overcome any harm that might be done by them, for the patient usually survives. In types 1 and 2 there is a vessel open which nature closes, with a clot, and there is a tendency for bleeding to continue until the opening is firmly closed. It is imperative to retain the clot in the opening until it has organized, and sealed the vessel. To this end everything must be done that will quiet the circulatory system. Both mental and physical rest should be insisted upon. The mental rest can oftentimes be obtained through reassuring the patient and giving him confidence and hope. Where this cannot be done a hypodermic injection of morphin is to be resorted to. Personally he does not like to use morphin when he can avoid it, yet at the same time, it meets two important indications in the treatment of hemorrhage. (a) It quiets the patient, and (b) it reduces the tendency to cough. When he resorts to it, he rarely gives a large dose, usually 1/16 grain hypodermically. This small dose seems to have a decidedly sedative action and avoids the severer blunting effect on the nerve endings of the respiratory tract of the larger dose. He feels that great harm is often done in the treatment of hemorrhage by large and repeated doses of morphin. It prevents the patient clearing out the blood from the respiratory tract and thus favors a complicating pneumonia. Physical rest is essential, and he should be kept quiet until all danger of recurrence has passed. In the way of medication, reliance should be placed on tincture of veratrum viride, giving five drops every three hours until the pulse slows then reducing the dose to four or three drops every four or five hours. The veratrum is somewhat slow in its action and in order to get an immediate effect he uses nitroglycerin 1/100 to 1/50 grain dissolved on the tongue will produce an effect in a few minutes, and then by the time the action is passing off, the veratrum is beginning to show its effect. He has recently used pituitrin, which in his opinion seems to promise well.

**Rheumatic Fever:** Horatio C. Wood, Jr., in the *New York Medical Journal* for June 13, considers the treatment of rheumatic fever. A rational therapeutic effort may be directed toward: 1. The removal of the cause of the disorder. 2. The correction of the perverted function, or 3. The amelioration of the symptoms. Although the exact species of microorganism has not been definitely proved, the bacterial origin of rheumatic fever must be conceded to be well established. The old idea that the value of salicylic acid in rheumatic fever was due to its antipyretic action, or analgesic properties, or to some mysterious



power to modify metabolism, must be regarded as definitely disproved. The fever is really a beneficial process and its reduction cannot assuage the general condition. Moreover we have other agents which are much more powerful antipyretics than the salicylates, but which are not to be compared to it in usefulness. If the effect of the salicylates was simply a relief of pain, morphin and other anodynes would long ago have entirely replaced the salicylate in the treatment of rheumatism. Both the clinical and scientific evidence seems to him to show overwhelmingly that salicylic acid has a direct curative action, they must act either directly or indirectly upon the cause of the disease. If, as is generally believed, inflammatory rheumatism is of bacterial origin, then it follows that the remedial power of the salicylates is most reasonably to be looked for in its antiseptic properties. With the idea of lessening the nauseating effects of the salicylates, a large number of compounds which liberate the salicyl radical in the system, but not in the stomach, have been introduced. He does not believe that any of these is equal to either the ammonium or sodium salicylate in the treatment of acute rheumatism. The disagreeable taste of the latter salts can be almost completely disguised by the use of a bitter such as the compound tincture of gentian. He believes that aspirin, although sometimes less disturbing to digestion, it is on the whole inferior to the older salts in the treatment of the acuter types of rheumatism. As to the amount of salicylate to be used, our aim should be to have in the blood of the patient the largest amount possible without causing severe symptoms; in other words, the salicylates should always be given up to the limit of tolerance. Nearly any adult will stand sixty grains in twenty-four hours, and some may take twice as much. The drug should be administered at short intervals until symptoms of mild poisoning as excessive tinnitus aurium or nausea; it should then be withheld twelve to twenty-four hours in order to allow the system to clear itself of the excess of the drug, and then given in as large doses as the patient can tolerate continuously. It should always be exhibited in solution. He also advises the use of acetate or citrate of potassium, and for the relief of pain in many cases, measures intended to directly relieve it are often needed. Personally he here advises the trial of coal tar analgesics. In spite of the tirade against them a few years ago, he believes that properly used they are less disturbing to the nutritive processes than morphin and so we can avoid or reduce the quantity of this drug. He does not accept the claims of the curative properties for the coal tar derivatives, but is convinced of their value in a symptomatic way.

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**Leukemia:** The June number of the *Therapeutic Gazette* comments on the use of benzol in the treatment of leukemia, having already called attention to the remarkable effects in certain cases of this disease by the use of this remedy. It has now been proven by clinicians on both sides of the Atlantic that it is possibly the most efficient remedy that we have in overcoming the leucocythemia, but it is also becoming evident that these results, like those which follow the use of arsenic, are all too frequently only temporary. Thus F. H. Smith has made a careful report of two cases of leukemia, one of splenomyelogenous, the other of the lymphatic type—and concludes, that while benzol is a remarkable remedy, spectacular in its effects, it is a two-edged sword, deserving of the utmost caution as to its administration and not specific in its effects. Smith emphasizes a point to which the *Gazette* has also already called attention, concerning the product which is to be employed medicinally. It is important to recall the fact that benzol is not benzine, but benzene, the formula of which is  $C_6H_6$ . Benzol or benzene is obtained in the fractional distillation of coal tar, while benzine is a product of crude petroleum. It is also essential that the benzol shall be chemically pure, as much of that ordinarily obtained in the market is contaminated with various foreign substances. The dose commonly administered is about 7 minims three or four times a day, mixed with equal quantities of oil, which is placed in

the capsule, immediately before it is to be swallowed. According to Smith's observation, benzol seems to be of no value in lymphatic leukemia, but of remarkable temporary potency in myeloid leukemia.

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**Hexamethylenamin:** In the *Archives of Internal Medicine* for June, Frank Hinman reviews the value of hexamethylenamin as an internal antiseptic in other fluids of the body than urine. He believes from his investigations, and from the recent studies of others, that the drug can be of no value in the alkaline or neutral fluids of the body, such as found in the serous surfaces in general. This will be true even when enormous doses of the drug are administered, which is shown by no conversion occurring in these fluids when large amounts of the drug are added directly to them. Hexamethylenamin, therefore, can be of no prophylactic benefit in any of the body fluids except those that are normally acid and the only three fluids of this character are the urine, sweat and gastric juice. His conclusions are: hexamethylenamin is dependent on the liberation of formaldehyd for its antiseptic value.

Hexamethylenamin is not converted into formaldehyd in any of the normal alkaline fluids of the body, therefore, it can be of no prophylactic value in any of these fluids. After some infections of these fluids, there may be under certain conditions a change in reaction sufficient to produce slight liberation of formaldehyd, but it was not possible to show that there would be enough to give antiseptis. In localized infections of pronounced acidity, hexamethylenamin is not taken into them from the circulation, in amounts to furnish formaldehyd in antiseptic strength (the gall-bladder possibly excepted). The therapeutic use of hexamethylenamin as an internal antiseptic is justified, experimentally, for urinary conditions alone, and then only when it is excreted into an acid urine. In the same issue of the same journal, Hugh McGuigan and C. L. von Hess report on the same drug, reaching a similar conclusion. They state, that since, after giving the drug, free formaldehyd appears only in the gastric juice and acid urine, and not in the other secretions, or in the blood, the liberation results from the acid reaction only and not from cell action. The only apparent indication for the internal administration of the drug, they conclude, is in infections of the urinary tract.

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**Sodium Chlorid:** Alexander Haig, in the *Medical Record* for June 6, treats of the deficiency of sodium chlorid in the etiology of neurasthenia. He has long believed that many cases of neurasthenia are due to defective circulation in the brain and great nerve centers, which is caused amongst other things, by debility of the heart muscle. He points out that a deficiency of salt in the body may produce effects more or less identical with those caused by underfeeding, because deficiency of salt leads to ever-increasing failure in the digestion and absorption of food till the nutrition of all the muscles, including that of the heart, suffers. He believes that those who do not make a habit of eating salt get a crave for it when the body is running short of chlorid, and that such a craving should on no account be neglected. People who make a habit of reading or working during meals, thus overlooking the taste of their food, are liable to neglect this craving and then serious results may follow. It follows that not only will vegetables, potatoes and alkali sweep chlorid out of the body, but any condition that increases the alkalinity of the blood will do the same. Now, nearly all wasting diseases such as chronic pulmonary disease and chronic enteritis of all kinds will do this, hence the marasmus in children which follows so frequently on diarrhoea, vomiting or any catarrhal trouble of the intestines or bronchi may be due in part to sweeping of chlorid out of the body; in his experience such marasmic children do very well, and show a most gratifying increase in weight and strength if from one half dram to one dram or more of chlorid of sodium is added to their food with a small dose of heart tonic, such a strophanthus. It is now his practice to ad-



minister chlorid of sodium to all children suffering from such troubles and he uses it as a routine treatment in convalescence from summer diarrhoea and vomiting. We have also to find out how many deaths now attributed to neurasthenia, debility, heart failure, dyspepsia, marasmus, and chronic intestinal catarrh have really been due to want of that important element in food digestion, hydrochloric acid.

**Psoriasis:** A. Rose, in the May number of *Merch's Archives*, states that the treatment of psoriasis has thus far been empirical. The chief internal remedy has been arsenic, but arsenic is no panacea for this disease. The treatment of psoriasis in the present state of our knowledge can do no more than remove temporarily the morbid changes of the skin, and limit fresh eruptions; actual suppression of the latter or a permanent cure is beyond our power. There are two theories at present under discussion: the parasitic and the neuropathic. Concerning the former the fact is that thus far all attempts to find and to demonstrate the pathogenic microbe have failed, and as yet we have no conclusive evidence of a transmission of the disease. In all the literature on ichthyol which he has studied, the idea of this drug as a remedy for psoriasis is not mentioned. He reports a case in a lady of twenty years, who had suffered from psoriasis for four years. The eruption had first involved the head, and later spread all over the body. For two months previous to consulting him, she had been taking arsenic, had used chrysarobin salve, and had observed a strict vegetable diet, she was suffering from chronic gastritis with gastralgia, headache and dysmenorrhoea. He first treated the gastritis, and after recovery from the gastric disorder, ordered at first, one five-grain pill and later two pills, three times a day. She was allowed to eat meat and whatever agreed with her. She gained in weight, improved in health, and after four months' use of the ichthyol the eruptions of psoriasis had wholly disappeared, and she had no more dysmenorrhoea. This is, as far as he is aware, the first case of psoriasis treated with ichthyol. It is too soon, he states, for a final judgment of the therapeutical value of ichthyol in psoriasis, the fact is, however, that in this case the psoriasis disappeared while it was employed, internally, a result which had not been obtained, not even temporarily while arsenic was taken and chrysarobin ointment applied.

**Diabetes Insipidus:** F. Farini, in the June number of the *Monthly Cyclopedia (Presse Medicale Gazette Clinique)*, considers pituitary treatment in diabetes insipidus. Numerous clinical observations have borne witness to the possible association of diabetes insipidus with lesions of the hypophysis. Haushalter and Lucien observed simple polyuria in a case of tuberculosis of the pituitary, and Simmons in one of cancerous metastasis in the posterior part of the sella turcica. Experimentation, too, has shown in the hands of Vassale and Sacchi, that the pituitary takes part in the regulation of the water content of the body. The patient, aged 23, after missing her menstrual periods for four of five months, developed pronounced polydipsia and polyuria, until upon admission to the hospital, four months later, five to six litres of watery urine were passed daily. There was no functional or organic nervous disorder. The patient was treated in succession with opium, belladonna, and strychnin without result. A salt free diet had no effect on the polyuria, and calomel and iodids were tried without result. Injection of epinephrin was without effect, but the first injection of pituitrin given caused the urinary output to drop from 5 to 2½ litres. By continuing the injections the urine was kept around or below 2 litres. Thirst disappeared and the nights became quiet. The effect persisted, however, only as long as the injections were administered, polyuria, and polydipsia reappearing as soon as they were stopped. Attempts to substitute ovarin, pancreatin, and thyroidin for the pituitary preparation were without success. It is reasonable to believe that the polyuria in this case was related

to disturbed pituitary function, but it is not possible to state whether this disturbed function was a sole and sufficient cause, or whether it was not merely a single factor in a combination of circumstances in the ductless gland system, which the injection of pituitrin was capable of temporarily restoring to their normal correlated activity.

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**Exophthalmic Goiter:** Robert Abrahams, in the *Medical Record* for June 20, treats of the medical management of exophthalmic goiter. The etiology of exophthalmic goiter was, and still is, a prolific source of investigation, speculation, theory and dogma. The treatment of a full-fledged case of exophthalmic goiter is difficult, but not hopeless. The ideal treatment is found in complete isolation, rest, and freedom from every conceivable care and worry. With this treatment no medicinal agents need be associated. Yet many of us have seen classical Basedow's disease in jaded and careworn housewives who did as well as their more favored sisters of leisure, with only the ordinary remedies. The most distressing sign of the disease is the rapidity of the heart action. He finds that the tincture of strophanthus given in 5 or 10 minim doses, three times a day, is most useful to steady the heart. This drug has been his standby in practice for twenty-five years. For a long time this drug was discredited in Graves' disease for the reason that it produced diarrhoea. At present the tincture of strophanthus is free from that drawback and can be given with safety and confidence as any other tincture without the risk of undesirable effects. If strophanthus fails, belladonna tincture in the same dose is a good second best. Strange to observe, digitalis acts badly on the heart in Basedow's disease. The other distressing conditions in this disease are tremor and nervousness. These are well controlled by ammonium bromid in doses of twenty grains, three times a day; this need be given for a short time only, because when the strophanthus begins to act, the nervousness subsides, as a good share of it results from the consciousness of a rapid and pounding heart. The lukewarm shower-bath is another means to allay tremor and nervousness, and it also does well as an hypnotic. Iron is rarely indicated, an opiate never. Once in a great while, when the patient is disturbed with frequent urination at night, one-quarter of a grain of codein will mitigate this evil. As to serums, he has used antithyroidin with complete cure in one case. The dose by mouth is ten to thirty drops, three times a day.

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**Diphtheria of the Skin.**—Two cases of diphtheria of the skin in children, sisters, occurring at the same time and one of them with a fatal termination, are reported by F. C. Knowles and L. D. Frescoln, Philadelphia (*Journal A. M. A.*, Aug. 1, 1914), who also give a general review of the subject which they summarize, in substance, as follows: Diphtheria of the skin may occur in several forms besides the false membrane type, ulcerative, gangrenous, eczematous, impetiginous eczema-like, pustular, impetiginous, ecthymatous, vesicular (varicella-like), bullous, dermatitis herpetiformis-like, tumors and abscesses. The cases reported were of the bullous impetigo type. Inoculation of the skin may occur by autoinoculation, by infected articles, and from one person to another. It may be primary on the skin or extend from it to mucous membranes, but is generally secondary to nose and throat infection. The true diphtheria bacillus must be distinguished in these cases from the pseudodiphtheria bacillus (Hofmann's bacillus). They differ morphologically, culturally and in animal inoculation. The diphtheria bacillus is particularly distinguished by the metachromatic granules (polar bodies) shown best by the Neisser stain, by the acid-producing qualities and the fatal results in animal inoculation. The bacilli have been further grouped by authors into distinct varieties of the true diphtheria bacillus. Skin diphtheria is especially contagious and the more dangerous because it is frequently unrecognized for a considerable period of time. Great care is therefore necessary to prevent its spreading and an early diagnosis is important.



## NEW AND NONOFFICIAL REMEDIES

Since the publication of New and Nonofficial Remedies, 1914, the following articles have been accepted for inclusion with "N. N. R." Those accepted during the current month are made prominent by the use of capitals:

H. M. Alexander & Co.: Normal Horse Serum; Typhoid Vaccine, Immunizing.

Antiseptic Supply Co.: Causticks; Caustick Applicators; Cupricsticks; Stypticks; STYPSTICK APPLICATORS, ALUM 75 PER CENT.

Arlington Chemical Co.: Arlco Urease.

Comar & Cie.: Electrargol; ELECTRARGOL FOR INJECTION 10 C. C. AMPOULES.

Farbwerke Hoechst Co.: Amphotropin; Erepton.

Fairchild Bros. & Foster: Trypsin.

Franco-American Ferment Co.: Lactobacilline Tablets; Lactobacilline Liquide, Culture A; Lactobacilline Liquide, Culture D; Lactobacilline Liquide, Infant Culture; Lactobacilline Glycogene Tablets; Lactobacilline Glycogene Liquide; Lactobacilline Milk Tablets; Lactobacilline Milk Ferment; Lactobacilline Suspension.

Hoffmann-LaRoche Chemical Works: Thiocol; Syrup Thiocol, Roche; Thiocol Tablets.

Hynson, Westcott & Co.: Phenolsulphonephthalein, H. W. & Co.; Phenolsulphonephthalein Ampules, H. W. & Co.; UREASE-DUNNING.

Merck & Co.: Cerolin.

H. K. Mulford Co.: Acne Serobacterin; Anti-Anthrax Serum, Mulford; Antistreptococcus Serum Scarlatina, Mulford; Coli Serobacterin; Culture of Bulgarian Bacillus, Mulford; Disinfectant Krelon, Mulford; Neisser Serobacterin; Pneumo Serobacterin; Salicylos; Scarlatina Strepto Serobacterin; Staphlo-Serobacterin; Staphylo Acne Serobacterin; Strepto Serobacterin; Typho Serobacterin.

Riedel & Co.: New Bornyval.

Reinchild Chemical Co.: Phenolphthalein Agar.

E. R. Squibb & Sons: Sodium Biphosphate, Squibb; Tetanus Antitoxin, Squibb; Tetanus Antitoxin, Squibb, 5,000 Units.

Since publication of New and Nonofficial Remedies, 1914, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Electrargol.—Electrargol is a colloidal solution of silver, containing silver, equivalent to 0.25 per cent metallic silver. It is said to be useful in febrile diseases, even in those which are not of a septic character. It is also used externally in inflammatory conditions. For subcutaneous, intramuscular or intravenous injections electrargol is supplied as Electrargol for Injection in ampoules containing 5 cc. For external use electrargol is supplied as Electrargol for Surgical Use in bottles containing 50 cc. (*Jour. A. M. A.*, June 6, 1914, p. 1808).

Refined and Concentrated Tetanus Antitoxin.—Marketed in packages containing 5,000 units (curative dose) put up in syringe containers. E. R. Squibb & Sons, New York (*Jour. A. M. A.*, June 13, 1914, p. 1890).

Culture of Bulgarian Bacillus, Mulford.—A pure culture in tubes of the *Bacillus bulgaricus*. It is designed for internal administration for the purpose of establishing lactic-acid-producing bacilli in the intestines and for external use. H. K. Mulford Co., Philadelphia, Pa. (*Jour. A. M. A.*, June 13, 1914, p. 1890).

**Lactobacilline Tablets.**—A pure culture of the *Bacillus bulgaricus*. These tablets give rise to the production of considerable quantities of lactic acid, which tends to restrain the growth of putrefactive organisms in the intestines. Franco-American Ferment Co., New York (*Jour. A. M. A.*, June 13, 1914, p. 1890).

**Lactobacilline Liquide, Culture A.**—A pure culture in tubes of the *Bacillus bulgaricus* grown in a neutralized sugar bouillon, each tube containing from 5 to 6 cc. Its actions and uses are the same as those of Lactobacilline Tablets. Franco-American Ferment Co., New York (*Jour. A. M. A.*, June 13, 1914, p. 1891).

**Lactobacilline Liquide, Culture D.**—A pure culture in tubes of the *Bacillus bulgaricus* grown in a neutralized bouillon. Its action and uses are the same as those of Lactobacilline Tablets. Marketed as Lactobacilline Liquide, Culture D, small containing 5 cc., and Lactobacilline Liquide, Culture D, large containing 16 cc. in each tube. Franco-American Ferment Co., New York (*Jour. A. M. A.*, June 13, 1914, p. 1891).

**Lactobacilline Liquide, Infant's Culture.**—A pure culture in tubes of the *Bacillus bulgaricus* in a whey medium. It is employed in the treatment of diarrhea or dysentery in nursing infants or young children. Franco-American Ferment Co., New York (*Jour. A. M. A.*, June 13, 1914, p. 1891).

**Lactobacilline Glycogene Tablets.**—Tablets containing pure cultures of the *Bacillus bulgaricus* and the *Glycobacter peptolyticus*. The *Glycobacter peptolyticus* transforms into sugar the amylaceous substances in the diet, thereby furnishing a pabulum for the *B. bulgaricus*, which in turn transforms the sugar into lactic acid. These tablets are designed for the prevention and treatment of intestinal diseases. Franco-American Ferment Co., New York (*Jour. A. M. A.*, June 13, 1914, p. 1891).

**Lactobacilline Glycogene Liquide.**—A pure culture in tubes of the *Bacillus bulgaricus* and the *Glycobacter peptolyticus*. Its action and uses are the same as those for Lactobacilline Glycogene Tablets. Marketed as Lactobacilline Glycogene Liquide, small containing 5 cc., and Lactobacilline Glycogene Liquide, large containing 16 cc. in each tube. Franco-American Ferment Co., New York (*Jour. A. M. A.*, June 13, 1914, p. 1891).

**Lactobacilline Milk Tablets.**—Tablets containing pure cultures of the *Bacillus bulgaricus* and *Bacillus paralacticus*. These tablets are used in the preparation of scientifically soured milk. Franco-American Ferment Co., New York (*Jour. A. M. A.*, June 13, 1914, p. 1891).

**Lactobacilline Suspension.**—A pure culture in tubes of the *Bacillus bulgaricus* grown in a neutralized bouillon medium. This culture tends to inhibit the growth of deodorant, putrefactive and pathogenic organisms and is used externally in various suppurative conditions. Marketed as Lactobacilline Suspension, containing 5 cc., and Lactobacilline Suspension, Surgical, containing 20 cc. in each tube. Franco-American Ferment Co., New York (*Jour. A. M. A.*, June 13, 1914, p. 1891).

**Lactobacilline Milk Ferment.**—A pure culture in tubes of the *Bacillus bulgaricus* and *Bacillus paralacticus*. Its actions and uses are the same as those of Lactobacilline Milk Tablets. Franco-American Ferment Co., New York (*Jour. A. M. A.*, June 13, 1914, p. 1891).



**AMERICAN PROCTOLOGIC SOCIETY**

Sixteenth annual meeting, held at Atlantic City, N. J., June 22 and 23, 1914. President, Jos. M. Mathews, Louisville, Ky. The Vice President, Jas. A. MacMillan, M. D., Detroit, Mich., in the chair.

Officers elected for the ensuing year: President, Louis J. Krouse, M. D., Cincinnati, Ohio; Vice President, Collier F. Martin, M. D., Philadelphia, Pa.; Secretary-Treasurer, Alfred J. Zobel, M. D., San Francisco, Cal.

Executive Council: Jas. A. MacMillan, M. D., Detroit, Mich., chairman; Louis J. Krouse, M. D., Cincinnati, Ohio; Lewis H. Adler, Jr., M. D., Philadelphia, Pa.; Alfred J. Zobel, M. D., San Francisco, Cal.

The place of meeting for 1915 will be San Francisco, Cal. Exact date and headquarters will be announced later.

The following were elected Associate Fellows of the Society: Dr. Wm. H. Axtell, Exchange Block, Bellingham, Wash.; Dr. Rolla Camden, 915 Avenue of the Presidents, Washington, D. C.; Dr. Descum C. McKenney, 1250 Main Street, Buffalo, N. Y.

The following is an abstract of the principal papers read: Extracts from the Report on Proctologic Literature from March, 1913, to March, 1914, by Samuel T. Earle, M. D., of Baltimore, Md.

In Samuel T. Earle's review of Proctologic Literature from March, 1913, to March, 1914, he quotes from the following authors, giving the salient points from each of their papers.

Percival P. Cole, M. B., Ch. B., F. R. C. S., England (*British Medical Journal*, Vol. I, 1913, page 431), "The Intramural Spread of Rectal Carcinoma."

Robert A. Bachman, M. D., Newport, R. I., Surgeon U. S. Navy (*Journal of American Medical Association*, Vol. L, 1913, page 1154), "A New Method for Hemorrhoids."

Jerome M. Lynch, M. D., New York City (*The American Journal of Obstetrics and Diseases of Children*, February, 1914, page 322), "Blocking the Sympathetic by a Method Other Than Spinal Anesthesia to Prevent shock in the Combined Operation for Cancer of the Rectum, or Recto-Sigmoidal Juncture, with Some Improvements and Modifications of Technic."

Charles R. Robins, M. D., Richmond, Va. (*The Old Dominion Journal of Medicine and Surgery*, May, 1913, Vol. XVI, page 236), "Sliding the Rectum in the Cure of Various Defects."

Granville S. Hanes, M. D., Louisville Ky. (*Kentucky Medical Journal*, Vol. XI, June 15, 1913, page 516), "Anal Pruritus Treated by Operation; Report of Case."

Frederick H. Williams, M. D., Boston, Mass. (*New York Medical Journal*, Vol. XCVII, 1913, page 875), "Electricity in Rectal Diseases. A Neglected Resource in Their Treatment."

T. F. Riggs, M. D., Pierre, S. D. (*The St. Paul Medical Journal*, Vol.

XV, page 461), "Fistula-in-Ano: Its Rational and Successful Treatment." P. Lockhart Mummery, F. R. C. S., England (*The Lancet*, Vol. II, 1913, page 72), "Operation and After-Treatment of Fistula-in-Ano."

Harvey B. Stone, M. D., Baltimore, Md. (*Annals of Surgery*, Vol. LVIII, 1913, page 647), "Immediate and Late Results of the Whitehead Operation for Hemorrhoids."

Daniel Fisk Jones, M. D., Boston, Mass. (*Boston Medical and Surgical Journal*, Vol. CLXIX, page 707), "Carcinoma of the Rectum."

James W. Heslop, M. B., M. R. C. S., Newcastle-on-Tyne, England (*The British Medical Journal*, February 28, 1914, page 476), "Dissemination in Carcinoma of the Rectum."

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### Coccygodynia: A New Method of Treatment by Injections of Alcohol, by Frank C. Yeomans, A. B., M. D., of New York City, N. Y.

The diagnosis is established by a thorough examination, both general and local. Local examination is made by inserting the index finger into the rectum and palpating the coccyx between it and the thumb outside. The soft parts intervening between the coccyx and anus are now compressed and the point of maximum tenderness is thus located, usually just beyond the tip of the coccyx. Proctoscopy rules out rectitis.

The prognosis hitherto has been better in the traumatic cases than in those of frank neuralgia or neuritis. The writer confidently predicts that the treatment proposed will render the latter equally amenable to treatment.

The writer proposes a treatment based on the suggestion of Schlosser in 1907, of injecting 70 to 80 per cent alcohol in sensory nerves, thereby causing their degeneration as practised with marked success in trifacial neuralgia.

The technique is simple and can be carried out in the office under strict aseptic precautions. The patient with empty bowel is placed on a table in the Sims' position and the skin about the coccyx painted with tincture of iodine. A 2 c. c. Luer or similar syringe is filled with 80 per cent alcohol and armed with a two-inch needle. The right index finger is now inserted into the rectum and the point of maximum tenderness is determined by counter pressure with the thumb outside. Maintaining the finger in the rectum to guard against puncture and as a guide, the needle is introduced through the mid-line directly to the painful spot, and 10 to 20 minims of solution are injected slowly.

The needle is withdrawn and its puncture sealed with collodion. The pain from the injection lasts a few minutes and is followed by a dull ache which may last a day or two. From three to five injections are usually required at intervals of about one week.

The writer reports seven cases, all women, treated from two months to four years ago. They required three, four or five injections each at intervals of about one week. Relief was prompt and complete and all the patients have remained well.

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### The Technique of the Perineal Operation for Cancer of the Rectum, by J. A. MacMillan, M. D., of Detroit, Mich.

In every case a preliminary colostomy must be considered imperative. The colostomy provides the only means of discovering whether a radical operation is justifiable or not, supplies physiologic rest for the affected part, and later provides for aseptic conditions in the surgical field.

After thorough divulsion a circular incision is made at the mucocutaneous line and carried up to the lower surface of the levator ani. Most of the dissection can be done by the fingers. It is not necessary to destroy the external sphincter. This step of the operation exposes a



circular area of the levator ani about an inch and one-half wide. Before proceeding further the hemorrhage should be controlled and the location of affected glands determined.

The next step of the operation includes the division of the levator ani and the removal of lymphatic glands.

The peritoneum may be entered anteriorly and separated laterally which will leave the mesosigmoid as the only attachment of the bowel. This should be divided as far from its colonic attachment as possible in order to secure the retention of a good vascular supply for the proximal end of the bowel after the excision.

When the gut can be drawn down sufficiently to permit the excision of the affected portion and the attachment of the lower edge of the mucous membrane to the skin, excision is done and the sutures placed. Free drainage is necessary.

The colostomy is not closed until the patient has been up and about for several weeks.

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### Myasthenia Gastro-Intestinalis, by V. Lee Fitzgerald, M. D., of Providence, R. I.

By the term "myasthenia gastro-intestinalis" is understood a weakness of the muscles of the abdomen, stomach, intestines, and their supporting ligaments, with a consequent downward displacement of any or all of the viscera.

Many patients suffering from myasthenia in its different forms are in danger of having suspensory or other operations performed upon them, whereas the intestinal stasis can be entirely removed by medical measures and the baneful effects of the underlying ptosis entirely removed.

The general aim in the treatment is the relief of the stasis, and the restoration of the prolapsed viscera to as near their normal position as possible.

The success in the treatment of these patients depends not only upon the relief of stasis, but also upon the patient's active and persistent co-operation.

For the past two years the writer has been treating cases of myasthenia as follows: The patient is given a thorough examination, including that of the gastric contents, urine, and feces. In case of myasthenia of the stomach with dilatation and prolapse, the patient is put to bed and fed through a duodenal tube six or seven times a day, depending upon the amount of food needed to nourish the patient. This gives the stomach a complete rest, and it comes up into normal, or nearly normal, position in from ten days to two weeks.

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### Further Observations on Pruritus Ani: Its Probable Etiological Factor; Results of Treatment. (A fourth report, based on results of original research.) By Dwight H. Murray, M. D., Syracuse, N. Y.

In this report on the fourth year's work of original research on pruritis ani, the author finds there is not much more to give to the profession beyond the confirmation of the work of previous years. He has yet no reason to doubt his claims for the infection theory of pruritus ani.

Twenty new cases have been examined during the past year. In all but two of these streptococcus fecalis has been demonstrated.

It has been found that occasionally the bacterial growth seems to be so lacking in strength that it is difficult to obtain an autogenous vaccine. It is not known why this is so unless it is owing to the very low grade inflammation produced by germs not so active as those found in many other infections.

During this year two cases were treated by other physicians who tried to follow his technique, but in neither case was improvement manifest,

notwithstanding that streptococci were found present by the author's bacteriologist and although the same quality of vaccines were used. With the consent of their physician the author took up the treatment. Improvement was marked. The only point of difference in the technique that he could discover was that the others injected the vaccine deep into the muscle instead of directly into the skin or immediately beneath it.

During the past year the author has had additional proof that the itching does not extend appreciably above the white line of Hilton. He has also had continued confirmation of his previous statement that the moisture found upon the parts is not a discharge from the rectum.

This past year's work again shows that other rectal diseases are not present regularly with pruritus ani, and the belief is confirmed that they are coincidental instead of etiological.

No unfavorable sequelae arose from the vaccine injections. There is now no hesitation in running the dose up to two billion or more dead bacteria. One injection resulted in formation of a jelly-like material in the tissue, but this was absorbed. Some time ago a similar swelling was opened and found to be sterile, and no trouble has resulted.

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#### A Report of Cases of Pruritus Ani Treated With Carnotite, by Samuel T. Earle, M. D., of Baltimore, Md.

Carnotite, a radio-active mineral, was used in the treatment of eight cases of pruritus ani and was found to be a very satisfactory palliative remedy.

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#### Treatment of Amebic Dysentery by Emetin Hydrochlorid, by Alfred J. Zobel, M. D., of San Francisco, Cal.

The writer gives a brief culling from the literature on the emetine treatment amebic dysentery, and also a few words relative to the drug itself.

He states that in ematin hydrochlorid we have a reliable, non-toxic drug possessing a definite specific action; which may be administered hypodermically, and yet which will permit of a sufficient dose being given without causing any depression, nausea, vomiting, or local reaction.

He reports two interesting cases in which the disease was present in one individual for ten, and in the other for fourteen years. Under the influence of emetin, within two or three days amebae, blood, mucous, froth, and foul odor disappeared from the dejections and their number greatly decreased; the racking tenesmus, bearing down feeling in the rectum, the colic, and the abdominal tension, discomfort, and gurgling absolutely ceased.

Proctoscopic examinations revealed the favorable influence of the drug upon the amebic ulcerations. No amebicidal irrigations were employed.

He further reports other cases seen by him in consultation which demonstrate most forcibly the necessity for a proctoscopic examination of the bowel and a microscopic examination of the feces in every instance where a diarrhoea lasts longer than a week, even though the patient has never lived in nor visited a locality where the disease is known to exist.

He advises that emetin should be given for at least three or four months at intervals before the patient should be considered free from the possibility of a recurrence, even though he is clinically cured and the amebae cannot be longer found in the stools.

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#### Amebic Dysentery and Its Treatment, by Doctor Wm. M. Beach, of Pittsburgh, Pa.

The writer of this paper states that:

- (1) Amebic dysentery in the early stages may be cured with emetin.
- (2) In cases somewhat advanced emetin is efficacious and at least clinically



curative. (3) The use of the duodenal tube, through which to introduce solutions of emetin to any portion of the intestinal tract, should receive trial and consideration. (4) For rapid cure, and control, cecostomy or appendicostomy is the best measure in advanced and chronic cases. (5) Direct irrigation from above is superior to rectal injections, in that it is less painful and more thorough. (6) The appendix should be removed in most cases of amebic dysentery. (7) The so-called specific emetin can be easily applied in weak solutions.

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### The Pathologic Sigmoid Colon and Its Surgery, by L. J. Hirschman, M. D., of Detroit, Mich.

Studies with the fluoroscope and the sigmoidoscope have shown that true prolapse and invagination of the sigmoid colon into the rectum is not an uncommon condition. The author advocates shortening the mesentery of the sigmoid by attaching the mesentery of the invaginated or prolapsed portion to the root of the mesentery of the descending colon.

In a number of cases of obstruction to normal defecation, this obstruction will be found in women who give a history of a disturbed puerperium. Radiographic studies of these patients who give a history of chronic obstipation accompanied by pain and marked tenderness in the left lower abdominal quadrant and the region of the womb and broad ligaments, more often the left, show the presence of adhesions which angulate, displace or bind down the sigmoid. The cure of this condition involves the relieving of the adhesions and the covering of raw areas with omental, epiploic or mesenteric grafts, or the excision or short-circuiting of the sigmoid. Another class of adhesions of the sigmoid seriously obstructing defecation is caused by adhesions to the abdominal wound following laparotomy.

Hypertrophy or redundancy of the sigmoid colon is another pathological condition which has not infrequently been met with. When the walls of the bowel contain a large proportion of unyielding fibrous tissue, short-circuiting is insufficient and excision is indicated.

In malignant growths of the sigmoid colon, excision with immediate anastomosis is the ideal indication.

When inoperable it is the author's practice to always make the colostomy in the median line. This is done for the following reasons: First, the median incision is the best for exploratory purposes. Second, one has the choice of any part of the colon in the making of the colostomy. Third, one gets just as good adhesion and union, with no more liability to hernia, as in the side. Fourth, the patient is better able to cleanse and dress the colostomy in the median line. Fifth, it takes the colostomy opening away from the neighborhood of the iliac crests, and allows of the better fitting of retention apparatus and colostomy shields. Sixth, control of median colostomy is just as satisfactory as the lateral.

The author has found no difficulty in securing colostomy control by using a small rubber catheter in the mesenteric opening beneath the spur and encircling the upper limb of the colostomy with this catheter, drawing it just snug enough that the mucous surfaces appose. The catheter is held in this position by a seraphine snap and is released by the patient when he wishes to defecate or expel flatus.

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### Myxorrhoea Coli—Myxorrhoea Membranacea and M. Colica (Membranous Enteritis—Mucous Colic), by Doctor S. G. Grant, of New York City, N. Y.

The essayist explained that myxorrhoea coli was a symptom complex characterized by constipation, abdominal pain, uneasiness or soreness and the periodic evacuation of jelly-like strips or casts of tenacious mucus on the one hand or colic on the other and suggested that all mucous dis-

charges be designated as myxorrhea coli, with which understanding the former is called myxorrhea membranacea and the latter myxorrhea colica. The writer conceded that either type of myxorrhea coli may be secondary to neurogenic disturbances but strongly maintained myxorrhea membranacea and myxorrhea colica are frequently produced by many other conditions and diseases, medical and surgical, several of which may be factors in the same case. He had often known these conditions to be caused by psychic, neurogenic, gastrogenic and enterogenic disturbances, adenoidism, thyroid disease, impaired metabolism, abnormal menstruation, affections of the heart, liver and pancreas, inflammatory and ulcerative lesions (colitis), helminths, foreign bodies, prolonged or irritating colonoclysis, various lesions which induce chronic intestinal obstruction and led to coprostasis and autointoxication and other ailments which cause the hypersecretion or retention of mucus. The writer had observed patients who suffered at first from myxorrhea membranacea and later myxorrhea colica where the mucus became inspissated irritating and excited enterospasm.

The writer maintained that the diagnosis was easy in uncomplicated cases and that myxorrhea membranacea could be recognized by its symptom complex, obstinate constipation, uneasiness and soreness or pain in the lower left abdominal quadrant and the periodic discharge of strips, casts, or jelly-like masses of mucus, and that where subsequent to these manifestations and in the absence of signs pointing to intestinal obstruction from other causes colic suddenly supervenes, one is justified in making a diagnosis of myxorrhea colica.

The essayist discountenanced a routine treatment in these cases and advised holding curative measures in the abeyance until the acute symptoms subsided.

The removal or correction of kinks, twists, strictures, invaginations, adhesions, pericolic membranes and other lesions obstructing the bowel or causing stasis, effected a cure in many of the writer's cases and he rarely found the bowel sufficiently incapacitated to require resection, exclusion, or the establishment of an artificial anus.

In conclusion the writer stated that myxorrhea membranacea and myxorrhea colica were common affections and more frequently responded to surgical treatment than the literature on the subject would indicate.

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#### Peri-Rectal Gumma: Report of Two Cases, by Alois B. Graham, M. D., of Indianapolis, Ind.

The subject peri-rectal gumma owes a great deal of its interest to its rarity. The author reports two cases which are rather unique. They were seen within twenty-four hours of each other, and both presented a typical peri-rectal gumma, in that no lesion of any kind could be detected in the rectum of either patient.

The author's conclusions are that peri-rectal gummata are rare. The two cases reported are unique and of interest in that both were typical examples of peri-rectal gummata. In both cases the gumma was seen in its early or vascular phase. In one case it appeared 23 years after the initial lesion; in the other case it appeared three years following the syphilitic infection. Both gummata were painless to palpation and fluctuation was detected in both. An error of diagnosis in one case was responsible for the incision and subsequent suppuration which followed. In the other case no incision was made and suppuration did not occur. No demonstrable rectal lesion could be discovered in either case. The induration in both cases disappeared rapidly under antisyphilitic medication. No fistula resulted in either case.

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#### Anal and Rectal Growths of Benign or Doubtful Character, by Doctor T. Chittenden Hill, of Boston, Mass.

Hill states that in a series of 3,000 rectal cases previously reported



there were 49 benign and 76 malignant growths of the rectum. The large majority of these tumors were characteristic and the differential diagnosis was easily made. A few malignant growths seen in an early stage, and some unusual benign types associated with ulceration, were of such a nature that the exact diagnosis was not easily determined.

The writer emphasized the fact that the operative measures to be employed differ radically in each of these conditions. An excision of the rectum is necessary for the malignant cases, a simple local excision is all that is required for the benign growths, where an incision and drainage will suffice for the abscesses and fistulae. Therefore, a doubtful case cannot be treated as a breast case in which a complete amputation for a benign growth may be justified. In the case of the rectum there is not alone mutilation but a high mortality and a serious impairment of function as well to be considered. Furthermore, the removal of a specimen of a suspected tumor is not now approved and this complicates the problem still more.

The histories of several cases which illustrate the doubtful nature of some border line conditions occasionally found in the rectum are cited. They tend to show that aside from benign growths some of which have many of the characteristics of malignancy, there are certain abscesses which develop in the loose cellular tissue of the recto-rectal and pelvirectal spaces which are even more suspicious. These indurated, irregular swellings bulging into the rectal ampullae at first resemble very closely the sensation imparted to the finger in malignancy. A little later they become soft and fluctuation is perceptible when all doubt as to their nature is removed. The sinus from an old fistulae occupying these same spaces is apt to be much more perplexing than an abscess. As the slow process goes on the rectal wall is crowded into the lumen of the bowel and assumes an irregular, indurated outline which is very suggestive of cancer. Other conditions of similar doubtful character such as gummatous growths and tubercular ulceration are also discussed.

### Retrorectal Infections, by Collier F. Martin, M. D., of Philadelphia, Pa.

Martin reviews the histories of sixty-seven cases. In addition to the infection of the retro-rectal space many of the cases also had involved the pelvirectal and ischiorectal spaces. Some of the more chronic cases were complicated with stricture of the rectum and multiple fistulae.

Eighty-five per cent of the infections occurred in males. External traumatism was not a factor in this series of cases. The author holds that most of these infections originate from internal traumatism, associated with some condition which lowers the resistance of the individual to pyogenic infection.

Pulmonary tuberculosis appears to be a most constant factor in thus lowering the resistance. Twenty-one per cent died from tuberculosis at varying periods, either after examination or operation.

Forty-three per cent of the cases are noted as having pulmonary tuberculosis more or less advanced.

Of the fifty-five cases operated upon, thirty-three were cured. These present 60 per cent of the operative cases, or nearly 50 per cent of the total number examined.

In nearly half of the cases the original abscesses had opened posteriorly, either between the sphincters or at the anorectal line. Pain was not a prominent symptom.

The methods of incision applicable to the various complicating conditions are briefly outlined.

The author lays great stress upon the seriousness of these infections, and upon the necessity of the prolonged watchful after-treatment.

While the prognosis as to both complete recovery of the local condition and the general health, as well as to the preservation of the sphincter control, should be guarded, careful after-treatment and prolonged obser-

vation will result in saving a large proportion of these really serious cases. An abbreviated history of the findings in the entire 67 cases is given.

### Hemorrhoids; Their Treatment, by Doctor J. Rawson Pennington, of Chicago, Ill.

Doctor Pennington states that clinically hemorrhoids should be classified:

1. According to their location.
2. According to their structure.

According to their structure they are divided into, (a) those containing fluid blood, (b) those containing clotted blood, (c) those containing both fluid and clotted blood, and (d) those consisting of "skin tabs" or folds of skin.

Most hemorroidal cases can be operated on under some form of local anesthesia. He operates on 90 per cent of his cases by blocking the field of operation. The cocain is usually employed in the strength of from  $\frac{1}{4}$  to  $\frac{1}{2}$  of 1 per cent. The quinin and urea in from  $\frac{1}{4}$  of 1 per cent to 1 per cent solution. Sometimes he combines the solutions, the cocain being used for its immediate effect and the quinin and urea for prolonging the anesthesia.

During the last 20 years he has given a fair trial to a number of methods advocated which promised a reasonably good result, including the ligature, the clamp and cautery, Whitehead, injection, suturing and other methods which unite tissue in mass, and has come very definitely to the conclusion that by far the best way of treating this condition is by the excision or enucleation method.

The operative procedure should have for its object the removal of the cause of the tumefaction. The treatment for each type of hemorrhoid should be practically the same. This should consist in removing an ellipse from the tumor-like formation and in the case of the thrombotic pile turning out the clot, and in that of the internal variety the varicosity and allowing the blood to escape, and in the fleshy pile of dissecting out the excess of tissue.

### Hyperplastic Tuberculosis of the Colon, by J. M. Frankenburger, M. D., of Kansas City, Mo.

The writer declared that this form of tuberculosis of the intestine differs from other forms of intestinal tuberculosis, inasmuch as it is amenable to operative interference. It is generally a local and primary lesion and is characterized by the formation of tumor masses composed of fibrous and tuberculous granulation tissue in the walls of the bowel. Primarily there is no involvement of the mucous membrane, but on account of the narrowing of the gut the irritation caused by the passage of feces may produce ulceration.

Symptoms are slight, constipation and diarrhoea sometimes alternating. Later the symptoms are those of gradually increasing intestinal obstruction. Differential diagnosis is between sarcoma, carcinoma, syphilis, and chronic appendicitis with adhesions.

Treatment is purely surgical. If possible the entire growth should be removed, but failing in this a short circuiting operation should be performed to relieve the obstruction.

Two cases are reported with successful operation.

### Pseudo-Intestinal Stasis and Real Intestinal Stasis, Demonstrated Röntgenologically, by Arthur F. Holding, M. D., of New York City, N. Y.

Attention is called to many anomalies of visceral position and progress of the bismuth meal that have been interpreted as pathologic, and which



are really physiologic or anatomic anomalies and completely compatible with health, laying especially stress upon the fact that the ileum enters the caecum normally at an angle, and unless associated with proximal distension, a diagnosis of Lane's kink is not justified.

He emphasized the point that delayed progress of the bismuth meal is not significant of obstruction unless it is more than six hours behind the normal schedule and associated with marked distension of the viscus proximal to the locus of obstruction. Proximal distension with obstruction to the bismuth column are the two cardinal diagnostic points of real intestinal stasis. Intestinal obstruction, due to tumors, is much easier to diagnose than intestinal stasis, because the defect in the bismuth shadow made by the tumor is more definite than that made by adhesions, veils, or membranes.

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#### Local Treatment of Anal Fissure, by Jas. A. Duncan, M. D., of Toledo, Ohio.

The writer describes a treatment for anal fissure which he has employed successfully for the past 13 years. The fissure is brought into view by separating the folds, and the surface is lightly curetted, then thoroughly dried, and a drop of collodion applied. This takes only a moment or so. A recent ulceration requires but a single application. A sharp, stinging pain lasting for only a few minutes is caused, and then the patient is left perfectly comfortable.

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#### Some Unusual Phases of Sigmoidoscopy, by Ralph W. Jackson, M. D., of Fall River, Mass.

The diagnostic value of the sigmoidoscope has been the topic of much writing, and is increasingly appreciated by hospitals, but much less so by the profession and insufficiently in medical teaching. Explicit statements of its considerable therapeutic uses are not found in German, American or English literature. The instrument enhances the extent and accuracy of recto-sigmoidal therapeutics, and specifically it facilitates the use of certain other instruments, topical applications, the relief of high impaction, and the treatment of stricture and many other lesions. Serious trauma from the sigmoidoscope is more liable to happen than some authorities admit, as illustrated by three cases of intestinal perforation cited from the German. Two personal cases are detailed, where the patients were in serious condition from occlusion of the bowel, but were relieved and saved by sigmoidoscopy done with diagnostic intent only. Pelvic visceroptosis, hypermobility of the sigmoid, and the fixed and open rectal ampulla beneath predispose to invaginations and angulations which are fairly frequent in mild and chronic form, and are potentially dangerous as a source of acute obstruction. Sigmoidoscopy, properly conducted, empties the pelvis by gravity (due to the position assumed) by intelligent introduction of the instrument and by the air pressure admitted through it, and therefore tends to undo such intestinal malpositions. The occlusion in the two cases related was unexpectedly relieved, and doubtless in this way. Greater prevalence in the use of the sigmoidoscope would bring to light a field for deliberate therapeutic use of the instrument along these lines.

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#### Crude and Careless Diagnostic Methods, and Results of Same, in Some Recto-Colonic Conditions, by Jno. L. Jelks, M. D., of Memphis, Tenn.

The author criticizes the busy doctor and surgeon who too hastily yields to a conclusion and treats recto-colonic diseases without sufficient investigation to warrant or obtain a correct diagnosis.

Reference is made to cases operated on for appendicitis, which disease may be an extension of an infection and inflammation originating in the rectum or colon.

Cases are cited to show the frequency and at all times the liability of mistaking a condition for an infection or ulceration of the colon, specific in character, when a coloptosis or pericolic membranes, or both, were the true etiologic factors. Stress is laid on the importance of urinalysis, microscopic examinations and the X-Ray in recto-colonic cases.

A harder nodular calcareous degeneration of the outer zone of the mamma has been observed as a sequence of coloptosis and defective drainage. In another case, in which was found a cecum cradled in pericolic membranes, and a coloptosis, a duodenal ulcer was diagnosticated. In this case the urinalysis, the history, and general toxic appearance of the patient, pointed to true etiology.

Case reports are given in which diarrhoea was the dominant symptom, though inpactions, pericolic membranes, and ptosis were the true etiology.

The author calls attention to his prior reference to, and work of establishing the importance of conserving the ilio-cecal valve; also to the syphonage of the ptosed colon after short circuiting operations, which he accomplished by a second anastomosis between the blind colon and the sigmoid or rectum below the first anastomosis.

Importance is claimed for a microscopic examination of the intestinal contents of patients who suffer from attacks of appendicitis, and of the contents of the removed appendix; and the author insists that in the event that pathogenic amebae are found appendico-cecostomy should be performed instead of appendectomy.

The author refers to his observation of quite marked congestion of blood in the visceral vessels themselves in these cases of ptosis and defective intestinal drainage.

The author refers to the frequency with which he encounters cases of inoperable cancers of the rectum and intestines, the neglect of which is most often due to the fear of examination of those suffering with symptoms in the regions referred to.

Reference is made to the operation of appendico-cecostomy as being practically free of danger to life. In his opinion this operation would save almost every life that is today caused by the ravages of amebic colitis.

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#### Abscess Originating in a Pilo-Nidal Sinus, by Louis J. Krouse, M. D., of Cincinnati, Ohio.

The writer states that a pilo-nidal sinus is a congenital defect due to a faulty development of the foetus. It is usually located in the median line over the coccyx or the sacrum. Inflammation developing in the sinus is followed by burrowing of pus into the neighboring tissue. Inflammation of this sinus must be differentiated from necrosis affecting the sacral or coccygeal bone; from abscess originating in the sebaceous gland of this region; and from true fistula-in-ano. The treatment consists in the complete obliteration of the walls of the sinus.

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#### Abnormalities of the Colon, as Seen with the Röntgen Ray; Lantern Slide Demonstration, by W. I. LeFevre, M. D., of Cleveland, Ohio.

The entire alimentary tract can now be successfully examined with the X-ray, some parts more readily and successfully than others, according to the degree of satisfaction arranging themselves in the following order: Colon, stomach, oesophagus, small intestine. Two methods of examination are used. First, Röntgenoscopy, which is the examination with the fluoroscope. Second, Röntgenography, the making of X-ray plates. The colon is also accessible from either end, that is, it can be



examined by following the bismuth meal through from the stomach, or by giving an opaque enema of barium sulphate. In the former method the motor phenomena of the colon can be observed, in the latter the size, position and contour can be seen.

The action of atropin, adrenalin, pilocarpin and physostigmin as affecting the action of the bowel is briefly discussed.

The normal colon is described in detail, with radiographs showing different types. Many vary from the "ideal" type and still are normal for that individual.

Abnormalities of the colon may be produced by congenital defects, disease or injury to the bowel proper, from pressure, constriction or relaxation of other organs in close proximity. Coloptosis, owing to its frequency and importance is first discussed with radiographs showing these conditions. Other abnormalities consist of stenosis, malignant growths, tuberculosis, kinks, twisting, hernias, diverticulae, and megacolon or Hirschprung's disease. All these conditions can be recognized by aid of the X-ray.

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Some Problems Before the American Proctologic Society, by J.

A. MacMillan, of Detroit, Mich.

The writer states that: (1) During the past decade proctology has come to include diseases of the colon, and that the extension is beneficial inasmuch as it encourages and provides for a better diagnosis, and for a more thorough search after etiology. (2) The effort should be made by the American Proctologic Society to standardize some of the well-tried methods of treatment which have been proven effective and reliable. That on the other hand there are certain procedures in common use that are faulty and pernicious, and that it should be the aim of the Society to begin a campaign of education against these. (3) That in regard to rectal cancer he recommends that statistics from the members of the Society be collected annually, and utilized to ascertain the prevalence, and location of the disease, together with the extent of surgical interference or non-interference, kind of operation, and subsequent results.

The writer recommends that a cancer committee be appointed to take charge of this work.

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**Colon Resection.**—The variations in anatomy and the function of the large intestine are reviewed by W. J. Mayo, Rochester, Minn. (*Journal A. M. A.*, Aug. 8, 1914), who points out the different uses of the part proximal to the splenic flexure and the descending colon and sigmoid. The changes in function in early life are pointed out and reasoning from analogy he says we can assume that the functional activity of the proximal half of the large intestine concerns vegetable intake. In the herbivora this portion is a sort of silo in which fermentation of vegetable materials takes place, developing nutritive products of great value. Within the past 100 years it has been shown that the flesh intake of man has been increased four-fold and its decomposition in the intestine develops poisonous products which may be absorbed, and Mayo describes a peculiar form of silent constipation with thin-walled bowel and no abdominal distention, accompanied with symptoms which may be attributed to neurasthenia or even be mistaken for exophthalmic goiter in severe cases, which he attributes to such absorption. From a small number of patients—about 20—with exaggerated conditions of secocolic stasis and associated nervous symptoms, he has removed ten inches of the terminal ileum, appendix, cecum, ascending colon, hepatic flexure and a portion of the transverse colon, not trespassing to any extent on the transverse colon which contains the omentum. If all the omentum is removed damaging adhesions subsequently occur, with disastrous sequels. In all the cases in which this resection was made and the ileum joined to the transverse colon, there has been marked improvement and relief from constipation. Nearly all of them had been operated on before for appendicitis, etc. He thinks that it removed the cause, in some cases at least, of the existing intestinal toxemia. Although the operation is a serious one, none of the patients have been lost, but the number of persons for whom it is suitable is, Mayo believes, a very limited one.

## ANNUAL MEETING OF ALIENISTS AND NEUROLOGISTS

At the Third Annual Meeting of Alienists and Neurologists of the United States, held under the auspices of the Chicago Medical Society, for the purpose of discussing mental diseases in their various phases, July 13-17, 1914, the committee on "*The Causative Forces of Mental Deficiency*" reported the following resolutions, which were unanimously adopted:

We feel it unwise at this time to make any recommendations in regard to constructive legislation owing to the lack of proper evaluation of available data as to causes and sources of mental deficiency.

We do, however, recommend and urge regulation of mental deficient and the furthering of investigations as to the causes and sources.

The committee on the "*Prevention of Insanity*" reported the following resolutions, which were unanimously adopted:

Whereas, It is well recognized by alienists and neurologists the world over that certain major factors are the chief causes of physical conditions accompanied by mental derangement and deficiency, and

Whereas, These major causes are largely, if not wholly, controllable and eradicable, and

Whereas, These major causes are alcoholism, habit-producing drugs, venereal diseases, work in unsanitary and unhygienic surroundings, and hereditary influence, including the immigration of the physical and mental unfit; therefore, be it

Resolved, First: That we recommend to the proper state authorities the absolute control of the sale of alcohol until such time as actual prohibition be enacted.

Second: That the sale of all habit-inducing drugs be strictly regulated in all states of the Union.

Third: That municipal or state control of venereal diseases be established, with proper treatment for indigent patients, to the end that the spread of syphilis and gonorrhea be prevented.

Fourth: That proper, special hospitals for the care and treatment of alcoholism and drug addictions be established.

Fifth: That municipal, state and national inspection of labor conditions be regularly maintained and child labor abolished.

Sixth: That no known defective dangerous to himself and to others should be permitted to have unrestricted liberty.

Seventh: That adequate teaching of the principles of heredity and sex life be initiated and fostered in the home with the view to its introduction into the curricula of schools—above the grammar grades, this instruction to be given to the sexes separately.

Eighth: That the various states pass reasonable and universal marriage laws that will be reciprocal in preventing the marriage of the physical and mental unfit.

Ninth: That a psychopathic laboratory be connected with the criminal courts, common schools, railroads, transportation companies and public service utilities, responsible for the actual safety of the general public, should have their employees regularly examined as to their physical and mental fitness.

Tenth: That, inasmuch as state, county and city public health insti-



tutions should have as their superintendents men of highest qualifications, who may devote their best efforts to their tasks, we recommend that all such position be subject to civil service examinations.

Eleventh: That, in addition to the above, we recommend a nation-wide campaign of education conducted through the public press, university and medical schools, boards of health, state, county and city boards of education, women's clubs and other proper educational mediums, upon the true significance of the development—physical, mental and moral—of the individuals and the race, and finally, we recommend that a committee be appointed to promote the enactment of the above resolutions.

The committee on "*Alcoholism as a Causative Factor of Insanity*" reported the following resolutions, which were unanimously adopted:

Whereas, In the opinion of the meeting of Alienists and Neurologists of the United States in convention assembled, it has been definitely established that alcohol when taken into the system acts as a definite poison to the brain and other tissues; and

Whereas, The effects of this poison are directly or indirectly responsible for a large proportion of the insane, epileptics, feeble-minded, and other forms of mental, moral and physical degeneracy; and

Whereas, The laws of many states make alcohol freely available for drinking purposes, and therefore cater to the physical, mental and moral degradation of the people, and

Whereas, Many hospitals for the insane and other public institutions are now compelled to admit and care for a multitude of inebriates, and

Whereas, Many states have already established separate colonies for the treatment and re-education of such inebriates, with great benefit to the individuals and to the commonwealths; therefore, be it

Resolved, That we, unqualifiedly, condemn the use of alcoholic beverages and recommend that the various state legislatures take steps to eliminate such use; and be it further

Resolved, That we recommend the general establishment by all states and territories of special colonies or hospitals for the care of inebriates; and

Resolved, That organized medicine should initiate and carry out a systematic, persistent propaganda for the education of the public regarding the deleterious effects of alcohol; and be it further

Resolved, That the medical profession should take the lead in securing adequate legislation to the ends herein specified.

The committee on "*Syphilis as a Causative Factor of Insanity*" reported the following resolutions, which were unanimously adopted:

Whereas, Syphilis is responsible for a large percentage of all insanity and mental deficiency; be it

Resolved, That:

First: Health departments (municipal and state) should be equipped to make laboratory examinations for venereal diseases.

Second: All hospitals for the insane should be equipped to make laboratory examinations for venereal diseases.

Third: Hospitals and dispensaries for the treatment of venereal diseases should be provided.

Fourth: Physicians should be compelled by law to report cases of venereal diseases, as is now done in other contagious diseases.

Fifth: Applications for marriage should be required to furnish health certificates.

Sixth: Lectures and bulletins should be offered freely to the public regarding venereal diseases.

Seventh: Newspapers should be requested to use their best influence to educate the people concerning venereal diseases.

Eighth: Sex hygiene should be taught in the public schools, above grammar grades, to the sexes separately.

The proceedings of the Third Annual Meeting of Alienists and Neurologists of the United States held under the auspices of the Chicago Medical Society, July 13-17, 1914, will be published in one volume by the *Illinois State Medical Journal*. It will be in double column, the type and size of page the same as the Journal, and will comprise from four to six hundred pages. This book will contain the papers read and their discussions, together with resolutions adopted. The subjects covered are: Acquired Insanity, Epilepsy, Mental Defectives, Alcoholism, Abderhalden Test, Syphilis, etc.

The subjects of special interest are:

First: The Abderhalden test (especially in dementia praecox), which embraces the technic for the preparation of the substrates, mixing of materials in the test tubes, and the interpretation of the reaction. This will comprise one of the most complete symposium on the Abderhalden test so far printed in this country.

Second: Syphilis. The diagnosis of early syphilis by the Dark Field Illuminator. The technic for obtaining and mounting the specimen for the Dark Field examination. The technic for staining specimens obtained from local lesions and mucous patches, and the method for preparing and staining tissues for sections, for microscopical examination.

The Wassermann test: The technic for preparing materials, the method for mixing the same in test tubes, and interpretation of the reaction.

Third: The treatment of early and late syphilis is up-to-date, and embraces the technic for mixing and the method of administering intravenously Salvarsan and Neosalvarsan, also the technic and method for intra-spinal administration of Neosalvarsan and Neosalvarsanized serum in locomotor ataxia and paresis.

The proceedings will be published and ready for distribution by October or November, 1914. As only a limited number is left unsubscribed for, those wishing the publication will please send their subscription at once, as there will not be a second edition. The price of the book is \$2.00. Send subscription to the Editor of the *Illinois State Medical Journal*, Doctor Clyde D. Pence, 3338 Ogden Avenue, Chicago, Ill.



## BOOK REVIEWS

**The Principles of Pathologic Histology.**—By Frank B. Mallory, M.D., Associate Professor of Pathology, Harvard Medical School and Pathologist to the Boston City Hospital. Octavo of 677 pages, with 497 figures containing 683 illustrations, 124 in colors. Philadelphia and London. W. B. Saunders Company, 1914. Cloth, \$5.50 net.

As Doctor Mallory states in his introduction, this world treats pathology from the morphologic point of view, i. e., from a study of the cellular elements themselves, and it is refreshing to get the ideas of such a noted cytologist. As he himself says, "the literature of a pathologic subject represents the history of the study, understanding and interpretations of the lesions and these are by no means so important as the lesions themselves." On this account this book, representing years of study by Doctor Mallory at the Boston City Hospital, fills a much-needed want. No expression of the literature is mentioned at any place in the volume, but on the other hand we find the views of the author and his reason for the same, all plentifully illustrated. Some of his views are indeed quite opposite to accepted opinions, e. g., Krompecher's elaborate classification of the basal cell carcinoma he believes to be faulty and thinks that the so-called rodent ulcers, instead of arising from the Rete Malpighii, in reality are hair matrix carcinomata. The book starts in with chapters on "Inflammation and Repair," after which "Retrograde Processes and the Substances Associated With Them" are discussed. Among the "Special Injurious Agents and the Lesions They Produce," the articles on "Bacillus Tuberculosis," "Bacillus Leprae," and "Treponema Pallidum" are especially good. The entire portion devoted to tumors is well worth the time of any physician to read and his nomenclature suggestions for tumors are very commendable. The last portion of the book is devoted to "Special Pathology." Taken all in all, the book can be highly recommended for class-room work, for reference and for the general practitioner. The illustrations are excellent from a cytological point of view and really illustrate. The printer has done his work well, though the title page is incorrect as to number of pages and illustrations. A few mistakes in spelling and wording will also be noted, "proportions," line 10, page 1; "or" for "of," in line 25, page 228, and "when" for "where," in line 14, page 298; while the accepted spelling is "Aleppo" instead of "Allepo" in speaking of Aleppo Boil. We trust that Doctor Mallory will favor us very soon with a second enlarged edition of such a size that he can explain more in detail his views on several mooted questions. H. N. C.

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**Diet Lists of the Presbyterian Hospital, New York City.**—Compiled, with notes, by Herbert S. Carter, A. M., M. D., Consulting Physician to the Lincoln Hospital; Associate in Medicine at Columbia University, and Assistant Visiting Physician to the Presbyterian Hospital, New York City. W. B. Saunders Company, 1914, Philadelphia and London.

This little volume is of considerable practical value because it was prepared primarily for a specific purpose, namely, to keep in permanent form the working diet lists of the Presbyterian Hospital in New York City. These lists were then supplemented by a few others, as those prepared by Theodore Janeway. The main forms are the regular house diet, convalescent diet, typhoid diets, salt free and purin free diets, gastric diabetic and obesity diets. Variety for the patient and economy for the hospital are considered. Caloric values are given in each case. It is a very practical manual for reference. V. C. R.

## MEDICAL NEWS

**Cleveland Physicians Still Abroad.**—The Medical School of the Western Reserve University has received no news since August 1st from four of the faculty spending the summer abroad: J. J. R. Macleod, Professor of Physiology; Thomas Wingate Todd, Professor of Anatomy; P. J. Hanzlik, Demonstrator in Pharmacology and Materia Medica; D. D. Black, Associate Professor in Histology and Embryology, all of whom have been in Europe during the summer.

**Still in Scotland.**—Doctor C. C. Stuart and family are in Scotland for their summer outing.

**With the Red Cross.**—Doctor A. H. Bruening, of 2838 West 25th street, Cleveland, has accepted service with the Red Cross Society and will remain abroad during the present war.

**Recently Returned From Europe.**—Within the past few days Doctor A. F. Spurney, Doctor Walter C. Hill and Doctor J. V. Gallagher have returned to Cleveland, having experienced many of the discomforts of travel abroad at this time.

**Personal.**—Doctor William E. Bruner and family will spend next month at Seabright. Doctor Bruner is now convalescing after his recent operation.

Doctor George W. Crile and family are in the Canadian woods, where they have been for the past month.

Doctor C. A. Hamann and Mrs. Hamann are spending two weeks in the Yellowstone National Park.

**Academy of Medicine at Willowbeach.**—The annual picnic of the Academy of Medicine of Cleveland was held in accordance with the announcement, Thursday, July 30th, at Willoughbeach, Ohio.

The picnic committee consisted of Doctors Willard C. Stoner, H. O. Ruh, H. N. Cole and Leo Wolfenstein, who, combining experience of previous committees with their own ingenuity, were rewarded with the largest turnout of any annual picnic.

Three baseball games were promptly started, one regular and two "in-door-ball." The regular game was staged between the Westsiders and the Eastsiders, and was hotly contested. The Westsiders, aided and abetted by the umpires (at least so the Eastsiders say), nosed out a victory.

The chief combatants hastened to the lake for a swim, getting out just in time for dinner.

Plenty of smokes, corn pipes and tobacco, cigars and cigarettes, were furnished by the committee, as well as several gallons of lemonade, all to be had for the asking.

One hundred and one were seated at dinner, which was called within ten minutes of the stated time. The special cars took those who did not return by automobiles back to the city on schedule.

The weather was ideal, the arrangements of the committee perfect, and the enjoyment of all complete.

**Fremont Surgeon is Doing Duty in War.**—Doctor M. Stamm, Fremont's prominent surgeon, who went to Europe early in the summer to spend much time at the scenes of his boyhood in Switzerland and attend the exposition at Berne, writes friends here he has been asked to join the Swiss army as one of the surgeons, but on account of his age will not do so. Instead he will remain in Berne and do special hospital work in the absence of the regular physicians and surgeons, who have been called to the front.

**American Has Charge of Big French Army Hospital.**—Doctor



Alexis Carrel, of the Rockefeller Institute for Medical Research of New York, was about to leave for the United States, but at the outbreak of war he cancelled his departure, and is now in charge of a big hospital where the French wounded are treated. Writing of the war to a friend, he says:

"France has been transformed in miraculous fashion. Individuals themselves have changed. I could never have believed it, had I not seen it with my own eyes. Most perfect order prevails, and enthusiasm grows daily. I am more and more convinced that the men are animated with that spirit that can never be vanquished. I am seeking men ready literally to give their blood for transfusions to wounded soldiers. Already I have found a doctor and an attorney, and hope soon to have several others."

**Meetings Postponed.**—On account of the international crisis, the meeting of the American Chemical Society, which was to have been held in Montreal in September, has been indefinitely postponed.

The International Pharmaceutical Federation planned to meet at Berne on August 7 and 8 under the presidency of Professor L. van Itallie.

**Gold Medals.**—The Royal Institute of Public Health, in pursuance of the terms of a trust which enables it to award annually a gold medal to a public health medical official, at home or abroad, in recognition of conspicuous services rendered to the cause of preventive medicine within the British empire, has conferred the medal for 1914 upon Mr. James Niven, medical officer of health for Manchester.

The Royal Agricultural Society of England is offering a medal for a monograph or essay, which has not been previously published, giving evidence of original research in any agricultural subject or any of the cognate agricultural sciences applicable to British farming.

**Gift of American Museum of Natural History.**—A replica of the bust of Louis Pasteur by Dubois has been presented to the American Museum of Natural History for installation in the hall of public health, through the generosity of Doctor Roux, director of the Pasteur Institute in Paris, and M. Vallery-Radot, son-in-law of M. Pasteur.

**A Meeting Announced Before the War.**—The German Paleontological Society is to hold its annual meeting this year in London at the British Museum of Natural History on September 2 to 5. On September 5 and 6 the members will visit Oxford, and on September 7, Cambridge. The society now has 210 members, of whom 19 are Americans.

**New President of the Medical Defence Union.**—Sir John Tweedy, formerly president of the Royal College of Surgeons of England, has been elected president of the Medical Defence Union, in the room of Doctor Edgar Barnes.

**Increased Endowment.**—The endowment of the Rockefeller Institute for Medical Research has been increased by its founder by \$2,500,000. An additional \$1,000,000 was given to establish a department of animal pathology. The total gifts by Mr. Rockefeller to the institute now amounts to \$12,500,000. Mr. James J. Hill gave \$50,000 to the new department of animal pathology to use in the study of hog cholera. Doctor Theobald Smith, formerly professor of comparative pathology at the Medical School of Harvard University, has been made director of this new department.

**Canadian Appointment.**—The Canadian government has appointed Mr. James White to be assistant chairman of the Commission of Conservation, and Doctor C. Gordon Hewitt, dominion entomologist, to be Canadian representative on the permanent committee of the "International Conference for the Global Protection of Nature."

**Presented to University of Buffalo.**—Under the will of the late

Doctor Roswell Park, his entire library, consisting of about 3,000 volumes was given to the University of Buffalo Medical Department.

**Cornell University, Medical College, Endowment.**—Cornell University, Medical College, received as an endowment \$4,000,000 from (it is believed) Colonel Oliver Hazard Paine, of New York City. This is perhaps the largest individual gift ever made to a medical school. The gift provides an annual income of about \$200,000.

**Recent Appointments.**—Doctor Charles W. Eliot, president emeritus of Harvard University, has been elected a corresponding fellow of the British Academy.

Professor J. S. MacDonald, professor of physiology in the University of Sheffield since 1903, has been appointed Holt professor of physiology in the University of Liverpool, in succession to Professor C. S. Sherrington.

Mr. Frederick Soddy, lecturer in physical chemistry in the University of Glasgow, has been appointed to the chair of chemistry at the University of Aberdeen, in succession to Professor F. R. Japp.

Mr. T. B. Johnston, M. B., lecturer on anatomy in the University of Edinburgh, has been appointed to the newly-created office of lecturer and demonstrator in anatomy at University College, London.

**Offer to Establish Hospitals.**—Mrs. Sarah Wilson and Mrs. George Keppel have offered to establish a French-English hospital at LeTouquet whenever the French government deems it advisable. The hospital will contain 2,000 beds and will be maintained as long as the war lasts.

**Hospital of American Ambulance Corps in Paris.**—The American Ambulance Corps in Paris has secured a building in Neuilly which is to be transferred into a hospital. Twelve American physicians, headed by Doctor Joseph A. Blake, New York City, and twenty-four nurses have volunteered for service and \$9,000 has already been subscribed for the maintenance fund.

**Canadian Physicians Abroad.**—Word has been received from Doctor J. George Adami, of McGill University, that he is at present in Switzerland but will return to London as soon as possible. When last heard from President Falconer, of the University of Toronto, was in Sweden. Mr. Irving Heward Cameron, professor of surgery in the University of Toronto, is in London, England, and expects to return to Toronto in September.

**Offer Services For War.**—Doctors D. A. McLennahan, Hamilton; David B. Bentley, Sarnia, and Robert E. Wodehouse, Fort William, district officers of health in Ontario, have signified their intention of relinquishing their public health duties and going abroad with Canada's first contingent to the European war. Doctor John A. Amyot, provincial bacteriologist and professor of public health in the University of Toronto, has offered his services to the federal government for like service.

**French Surgery Superior.**—Doctor Alexis Carrel, of the Rockefeller Institute, New York, who is in charge of the hospital at Lyons, has written to Frederic B. Coudert here the following letter: "The French wounded arriving here daily are in good condition. They have no fever, and the manner in which their wounds are dressed and the state of the wounds prove that the surgical service at the front works splendidly and in good order. A great number of German wounded are also arriving here. They receive exactly the same care and attention as the French wounded. It seems certain that the German method of dressing wounds is not so good as the French method, because most of their wounds are infected."

**Local Doctor Chosen For Red Cross Work.**—Doctor Russell A. Jewitt, 18104 Cornwall road, a graduate of the Cleveland Medical College,



class 1907, has volunteered and been accepted for Red Cross service in Europe. He will sail on the same Red Cross ship that is to carry Cleveland nurses to the war. Indications are that this ship will sail within eight or ten days. Doctor Jewitt has an office at 487 Arcade. He was for a year connected with Charity Hospital, where he specialized in work with the ear, nose and throat.

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**Condition of Wounded Soldiers in Belgium.**—A peculiar incident of the war is noted by a correspondent of the New York *American*, who has recently been through several of the great Brussels hospitals and noted the condition of the wounded Belgian soldiers. These soldiers have carried on the defense of their country with a valiance which the fighting men of any nation might admire and envy. The writer remarks:

Two facts struck me very forcibly. The first was the very large number of Belgian soldiers wounded only in the legs, and, secondly, many of the soldiers seem to have collapsed through sheer exhaustion.

In peace times one sees and hears little or nothing of extreme exhaustion, because in times of peace the almost superphysical is not demanded. War brings new conditions.

These Belgian soldiers were at work and on the march during two stupendous days, practically without a moment's respite. They went, literally, until they dropped. As a medical man, their condition interested me enormously.

What force of will to fight and struggle until the last gasp! The exhaustion one sees often in heat strokes and in hot climates is commonplace, but this type of exhaustion is, by itself, the final triumph of brave spirits.

The victims presented a very alarming appearance when first I met them. They seemed almost dead; limp, pale, and cold. Recovery usually is not protracted; in every case the men knocked out in this manner expressed a fervent desire to return at once to the ranks.

So many Belgians have been shot in the legs that this fact has aroused considerable surprise in medical circles. It is not a matter of chance.

When German prisoners came in and were interrogated, the explanation was forthcoming that orders had been given to fire low, no doubt in the belief that the man hit in the leg must be immediately *hors de combat*. This was certainly humane of the Germans, as such wounds heal speedily. The German wounded, on the other hand, have been hit for the most part about the body.

The Belgian doctors are splendid, and working magnificently. Two schools have been converted into hospitals. I saw the operating theater, beautifully equipped, made out of a class-room in twelve hours, only the blackboard remaining.

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**A National Leprosarium.**—W. C. Rucker, Washington, D. C. (*Journal A. M. A.*, July 25, 1914), says that the problem of the control of leprosy presents many perplexities. We believe that we have discovered its cause, but its mode of entry into the organism, the effects of the different strains and its incubation period are as yet unknown. The role of rodents and insects in its transmission has been suspected, but we have no positive knowledge and there is no certain means of diagnosis in its earlier stages. No satisfactory method of treatment has been devised. The period of its greatest infectivity is unknown. We know that there is no racial immunity, but that it exists in all parts of the globe and that cleanliness and segregation are our only weapons against it. Add to this the facts that individual and community fear of the disease amounts to a very leprophobia, that there are several well-established foci in the country, and that it is slowly but surely on the increase, many cases being probably unreported. When lepers are segregated and properly cared for, the disease dies out, and it has been made notifiable in most of the states in three of which leprosariums have been established. The expense per

capita, however, is very great, owing to the small number in each. This is attributable in part to the general desire for the establishment of a national leprosarium, and another factor in bringing about this feeling among thinking men is the inhuman treatment which lepers receive on account of the common fear of the disease. Many other countries of the world have leprosariums, though far less wealthy than the United States. The number at present with us is comparatively small, and if the disease is fearlessly attacked its control will be relatively easy. It spreads very slowly, but when it has once spread it never recedes unless active measures are employed. For this reason Rucker offers a rough draft of what seems to be appropriate legislation on the subject calling for the foundation of a national leprosarium where lepers could be sent from any state and properly treated. This draft is given with his article.

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**A City That Doctors Itself.**—Cincinnati is soon to open a splendid new general hospital in connection with the medical school of Cincinnati University, which is under municipal control. This is said to be the only instance in this country of a municipal medical school and hospital conducted by and for a city.

The hospital, which will accommodate fifteen hundred patients at a pinch, is situated on a plot of twenty-seven acres adjoining another city-owned tract of thirty-eight acres to be used for day camps for weak and sick children or adults, and also for night camps for men with incipient or arrested tuberculosis.

The hospital will be the center for medical education in Cincinnati, for not only the physicians of the hospital staff will have the benefit of its use, but every reputable physician in the city as well. These outside physicians may hold their meetings in the large amphitheater where there are powerful projecting lanterns and other facilities to aid them in teaching, or they may use the spacious laboratories of the pathological building where specimens will be saved specially for their use.

With the opening of this hospital Cincinnati will be in a fair way to become one of the great medical teaching centers of the country. Furthermore, in making this departure in the history of municipal affairs in America, Cincinnati has set an excellent example for other cities to follow.

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**Teaching of Surgical Technic.**—W. C. Clarke and F. W. Bancroft, New York (*Journal A. M. A.*, Aug. 22, 1914), describe the teaching of surgical technic in the laboratory of research of Columbia University. The courses are given to fourth-year students in a well-equipped animal hospital. There are twelve instructors in surgical technic and two in surgical pathology, and the nurse in charge is a graduate of a hospital training school and is familiar with all surgical requirements. The course is an optional one, but the interest that it has excited is so great that at least three-fourths of the fourth-year students elect it, and each of the sections into which the class is divided averages ten men. The operating-room is furnished and equipped on modern lines, and the animal hospital is fitted up with every regard for comfort. Each animal has its own cage and there are especially heated ones for the recovery from anesthesia. There are bath-tubs, sluicing-hose, proper disinfectants and abundant light and ventilation. Many dogs are received as private patients, and a schedule of operations and of the course is given and the routine of a session described. A student operator is advised to visit his patients during convalescence, necropsies are made in fatal cases and specimens taken for pathologic examination. Several of the unusual causes of death that have occurred are described. The private animal patients have been the means of demonstrating various instructive conditions and the advantages of the course are numerous. The student becomes acquainted with the technic of asepsis, use of surgical instruments and other essentials. He has learned that an operation must be conducted exactly and methodically and has felt a personal responsibility for its success or failure, and after graduation, when he enters practice and is confronted with operations, he is no longer an untrained apprentice.



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## THE HEREDITARY BASIS OF EUGENICS

By A. R. TIMME, A. B., Cleveland.

Eugenics, contrary to a widespread opinion among both the laity and the profession, is not a dream of theorists or a promulgation of Utopian idealists, but a realizable principle which rests upon a firm scientific basis. This basis is Heredity, a new science a bare half-century old, a science with all the ear-marks of such,—laws, methodology and practical applications. Indeed, Eugenics may be defined as a teleologic application of the principles of Heredity, with the betterment of the human race in view.

It is to Gregor Mendel, the monk, that the science of Heredity, as such, dates back. Heredity has been and always will be bound up intimately with evolution as one of its basic factors. Half a century before Mendel, the natural philosopher Lamarck turned his attention to the hereditary transmission of characteristics in living things. Later, Charles Darwin based his great Theory of Evolution by Natural Selection on the principles of variation and heredity. Still later Weismann formulated the idea of germinal continuity into his Theory of the Germ-plasm. These and others, notably Herbert Spencer, Galton and DeVries, have contributed theories, principles and laws which form no small part of our present-day conception of Heredity; but it was Mendel whose discovery placed the subject on a scientific basis and gave it the impetus of mathematical precision and exactness. Heredity is now a science *an und für sich*; to be sure, it is a daughter of Biology, just as Neurology is a daughter of Medicine.

The first to recognize the importance of heredity in natural law was Lamarck in 1809. At that time his theory found little enough recognition; only later was its influence evident. The essence of his theory is this: during its lifetime every organism is continually acquiring and perfecting certain modifications in itself, due to the action of environment, and these modifications, subject to habit, etc., are transmitted in whole or in part to succeeding generations which are thus progressively better fitted

to cope with environmental conditions. But the transmission of acquired characters has been seriously questioned, and hereditarians have been divided on that point; some have even gone to the other extreme to deny such a transmission.

Heredity, together with variation, forms a vital part of Darwin's Evolution. His Heredity assumes the form of Pangenesis: every cell of an organism gives off small particles or "gemmules" which find their way into the circulation and eventually reach the germ-cell or bud-cells. These gemmules are then transmitted to the next generation in a dormant state, and there give rise with some degree of variability to characters which may have been inborn or acquired in the parent organism. Today we are inclined to question the existence of gemmules because we can scarcely conceive of particles so minute; nor have they been demonstrated. Nevertheless, although the actual manner of transfer of characteristics is open to question, the fact that such characteristics are inherited cannot be denied. Without heredity evolution would be impossible, and without the occurrence of "variations" we would have no new species. For when a "variation" or deviation from type occurs in an individual, its progeny will inherit the new characteristic, and, subject to the influence of environment, a slow and progressive change will be produced in the individuals of the line until a new species is the result. The cause of variations is still obscure. Thus organic evolution is a slow, continuous process, according to Darwin. Many years later, however, DeVries in Holland showed that new species may arise in a sudden, discontinuous manner. In the light of his Mutation Theory, mutations or "sports" or sudden and considerable changes are of much greater import in the origin of species than Darwin's variations or slow, progressive changes. Mendel's discovery will perhaps throw more light on the source and character of these mutations.\*

The next great theory in the history of heredity is Weismann's Germ-plasm Theory. It is briefly this: the individual is composed of immortal germ-cells and mortal somatic cells. The former are part of an unbroken, unchanged line which he has received from his ancestors and will transmit to his progeny. The latter are offsprings of these and vary in the individuals of the line, subject to environmental influence. The body is thus

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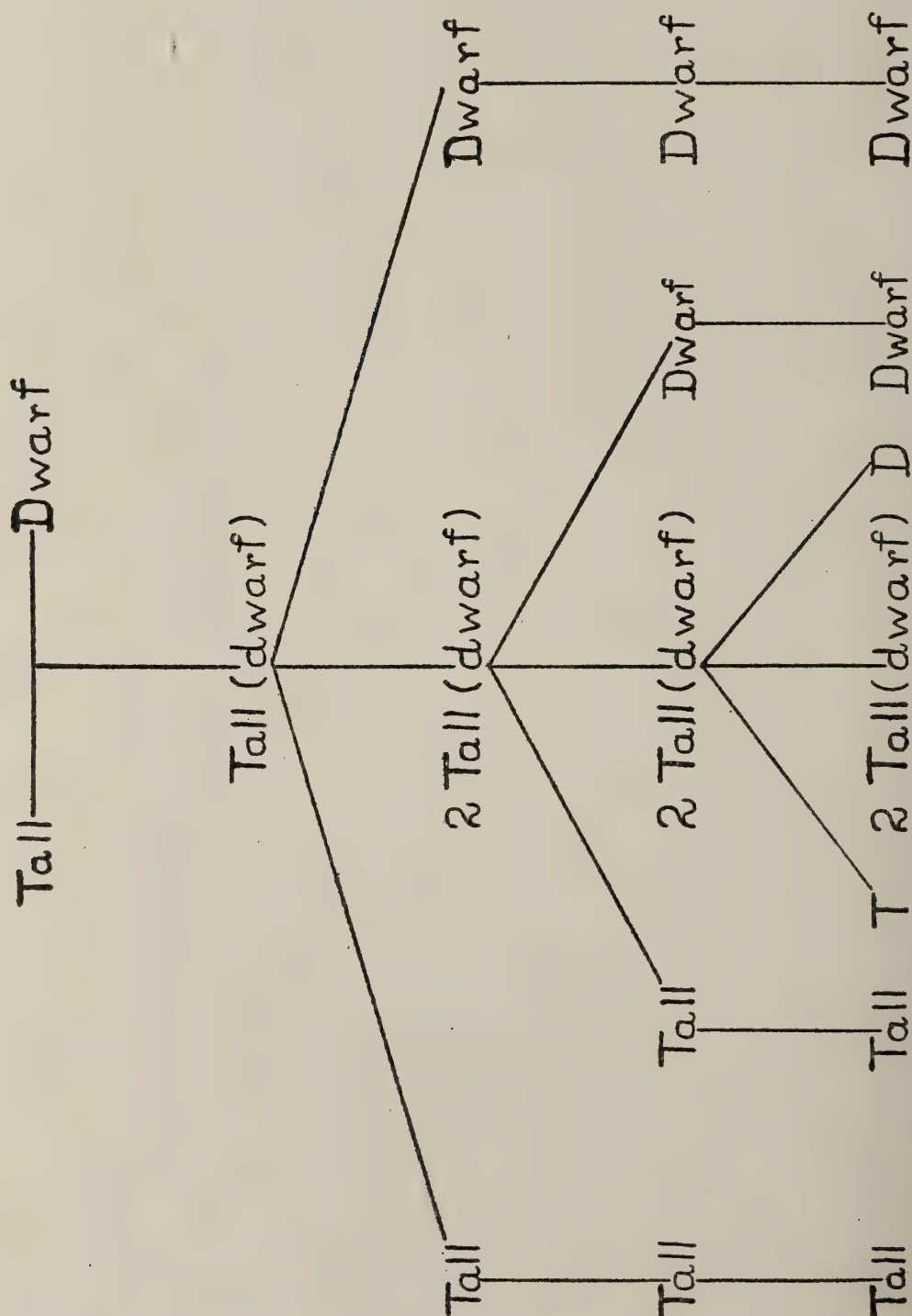
\* A mutation is probably a character which has long remained recessive, and suddenly makes its appearance.



a mere container of the germ-plasm which is subject to the least change from the original state. The body-cells undergo the greatest modification, but have no progeny of their own. This theory, therefore, excludes the transmission of acquired characteristics, except insofar as the germ-plasm itself is definitely modified during the life-period of the individual. Weismann's hypothesis is thus quite the opposite of Lamarck's. Hereditarians of today adhere to neither the one nor the other, but adopt an intermediate position which is probably more nearly in accord with the truth.

It remained for Mendel to establish definite, tangible laws, and thus to bring Heredity from the obscurity of theorizing into the open light of scientific experimentation and proof. In 1866 he published his classical experiments with the garden-pea. It was a misfortune that his treatise should appear in an obscure, unknown little journal at a time when the biological world was occupied with Darwinian discussion. But such was the case, and it was not until 1900, when DeVries rediscovered the same principles, that Mendel's original publication was found and one of the most important observations in biology brought to light. Lack of space demands only the briefest statement of Mendel's laws. The essentials are these: (1) unit characters or allelomorphs; (2) segregation of unit characters; (3) dominance of one unit character over another (Rosenau). (1) A unit character is any definite, single character transmitted from generation to generation and appearing to approximately the same degree in each individual bearing that character. (2) Several unit characters in an individual, derived from each parent, do not blend, but remain distinct or segregated. (3) When one character predominates over another so as almost or quite to overshadow or obscure it in an individual in which both appear, the first is the dominant, and the second the recessive, and the pair is spoken of as allelomorphs (Bateson). These three phenomena are best illustrated by Mendel's original experiment which was made with races of the garden-pea, namely, the tall and the dwarf varieties. Here the unit characters were tallness and dwarfness, of which tallness was the dominant. On crossing the two varieties, the offspring were all tall; dwarfness was in them recessive or hidden. When the offspring were fertilized among themselves, they produced tall and dwarf varieties in the ratio of 3 to 1. Of these the dwarf were true to type and differed in no respect from

the original dwarfs. Of the three talls, one was shown to be a pure tall variety, the exact type of the original tall. The other two talls were like their immediate parents, in that they contained recessive dwarfness which was again brought out by fertilization. In tabular form the results are made more clear:





The Tall (dwarf) varieties are called impure dominants. As individuals they cannot be distinguished from pure tall; it is only by breeding them with their like that the recessive dwarfness can be demonstrated. When two or more independent unit characters appear in each parent, each is transmitted independently of the other and appears in the offspring as dominant or recessive to its allelomorph from the other parent. For detailed theories of the method of transmission of unit characters and the way in which exact ratios are maintained, the reader is referred to the more extended treatises on Mendelian Heredity.

Here, then, is the eugenist's basis, firm, unerring, and supported by proof. The objection that these laws of Heredity are confined to the vegetable kingdom cannot be urged, for it has been shown that they apply with equal precision to animals. Such unit characters as color in the Andalusian fowl, comb-forms in chickens, color in guinea-pigs, and long hair in Angora cats, sheep and guinea-pigs come under the category of dominants and recessives and are transmitted as such. But what role does Mendelian Heredity play in human inheritance? This is one of the problems in Eugenics.

It is well to mention here the methods at the disposal of the hereditarian in determining the extent of application of Mendelian Law to man. There is, of course, the simple experimental method. One can hardly term this applicable to man for many reasons. At the outset, human nature does not lend itself to experimentation. Apart from that, however, there are many and great difficulties, such as the segregation of complex and diverse characteristics attendant upon civilization and dating from numerous generations, as well as the occurrence of miscarriages or deaths in infancy which upset any exact calculation. There is, next, the analytic method by which isolated families are subjected to analysis of transmitted characters. This method is subject to the same limitations as the experimental, besides entailing the difficulty of accurate diagnosis and history-taking. There is, finally, the statistical or biometric method, founded by Galton and expounded today by Karl Pearson. This method is in accord with Quetelet's idea that to many biological problems can be applied the mathematical theory of probability. It deals with great masses of individuals who are subjected to hereditary analysis; its results are expressed in averages. Here, too, the

main difficulty consists in the complicating and complex extraneous factors.

What facts has investigation by these methods established? In the light of recent research, it would be rash indeed to put man in the same category with the garden-pea. Not that Mendelism has no place in human inheritance, but rather because so exact a ratio as 1 Tall: 2 Tall (dwarf): 1 Dwarf has not been found in human offspring; rather because a universal and unfailing application of Mendelian principles to man has not and probably cannot be established. "The learned biologist may hope and imagine that the most sanguine expectations of the Mendelists may be realized, but the dabbler in science is positive they will be and talks as if they were already realized." Not unless such limitations and difficulties of investigation as are mentioned above could be obviated or circumvented, could we hope for a realization of expectations. Certain physical characters in homo are shown to be transmitted almost in a Mendelian manner; such are eye-color, color-blindness (sex-limited), night-blindness and brachydactyly. Certain forms of skin diseases and cataract, hemophilia, and Leber's type of optic atrophy show a partial degree of conformance to the law. Here, too, are included deaf-mutism, Huntington's chorea, hereditary ataxia, and retinitis pigmentosa. One is not deeply concerned with the possibility of demonstrating a rigid adherence to the law in the case of such characters; it is not so much a question of well-defined unit characters, of strict segregation or of complete dominance; but it is important that what Doncaster calls "intensity of inheritance" has been shown to hold in the case of human traits and characters. In other words, certain characters and traits, physical and mental, normal and abnormal, are distinctly hereditary and, if present in the parents, are sure to appear in the offspring if not in the first generation, then in a later, for an abnormal or pathologic trait may be recessive to a normal for one or many generations, and will assert itself sooner or later. There are certain ones among such hereditary characters of interest to the physician, notably the various diatheses or predispositions, such as tuberculous and insane (Heron and Rosanoff). Syphilis is probably not a strictly hereditary disease, but is rather congenital, i. e., acquired before birth, perhaps as early as the ovum or sperm stage. It can, however, give rise to a



train of hereditary entities, such as insanity, epilepsy, feeble-mindedness, and criminal tendency.

Perhaps the most interesting, most widely studied, and most important inherited trait is feeble-mindedness. I say important reservedly, meaning the importance, especially economical, to society at large; for feeble-mindedness is most intimately associated with other mental and moral stigmata—chronic alcoholism, sexual immorality, criminal tendency, and even epilepsy and insanity. Its significance, I say, is primarily economic, and, as is constantly pointed out, not until such a significance can be attached to a fact, will it receive proper public attention. How, then, is this significance manifest? Where the lower grades of feeble-mindedness are concerned, we have a condition easily recognized; individuals of this type are crowding our asylums, reformatories, prisons and alms-houses. The higher moron, on the other hand, is not to be distinguished from the normal by the casual observer, and, being thus allowed equal freedom with the normal individual, he propagates his kind and passes on a trait which is seldom, if ever, lost. He is, moreover, a potential criminal, and a large and increasing proportion of murder, robbery, sexual crime and incendiarism can be laid at his door. He presents, therefore, an added element of danger. The responsibility of the public school to the feeble-minded child is another aspect of the sociological importance of feeble-mindedness; it is too extensive a subject to be dwelt upon here. Suffice it to say, that here in Cleveland the incidence of feeble-mindedness in the school population is three per cent.

Probably the most comprehensive view of the vital significance to society of the propagation of mental defectives, and at the same time abundant proof of the unfailing certitude of inheritance of their unsound mental make-up, can be obtained from the studies of the genealogy of degenerate families. Not only feeble-mindedness, but also epilepsy, alcoholism, insanity, and traits which one terms immoral play a role in the heredity of these families and show an intensity of inheritance as great as any other hereditary character. A well-known family of this type is the Jukes family of New York state, investigated and compiled by Dugdale. "This family is traced from the five daughters of a lazy and irresponsible fisherman born in 1720. In five generations the descendants of Jukes numbered about 1,200 persons, including nearly 200 who married into it. The

histories of 540 of these are well known, and about 500 more are partly known. Some 300 died in infancy. Of the remaining 900, 310 were professional paupers living in almshouses (a total of 2,300 years); 440 were physically wrecked by their own diseased wickedness; more than half of the women were prostitutes; 130 were convicted criminals; 60 were habitual thieves; 7 were murderers. Not one had even a common school education; only 20 learned a trade, and 10 of these learned it in State's prison. The descendants of Jukes in five generations have cost New York State over one and a quarter million dollars, and the cost is still going on."

Two very interesting and instructive pedigrees have been compiled here in Cleveland by Miss Steinbach, who is the expert in feeble-mindedness in the Department of Medical Inspection of the Public Schools. Several cases of feeble-mindedness in school children of one family are brought to the attention of the department. Field-workers follow up these cases to gather the information; this is then collated and tabulated by Miss Steinbach in a manner similar to the accompanying charts. The first of these families is descended from a German (I-1) of average thrift and intelligence in whose family there seems to be no trace of feeble-mindedness or degeneracy, with the exception of two sons (II-2 and II-5), who "took to drink." Three of his other sons (II-9, 10 and 11) have established respectable families in whom no taint is apparent. One of the alcoholics (II-2), who later also committed suicide, married an immoral, feeble-minded woman (II-1); of their five children, one died of smallpox, one was insane (III-3), one alcoholic (III-4), and one feeble-minded (III-8). The latter (III-8) married a feeble-minded member (III-9) of an average, well-to-do family (Fam. B) in which there is a latent or recessive strain of feeble-mindedness (III-9 and IV-26); this union gave rise to seven feeble-minded (IV-18 to 20) and one epileptic. One of these feeble-minded children (IV-18) married a feeble-minded, alcoholic member (IV-17) of a degenerate family (Fam. C); the fate of their progeny is sealed!

The second of these pedigrees shows a more marked and interesting contrast. A sea-faring man (I-1), who later became a drunkard, had as his first wife a normal woman (I-4); their descendants of three generations are today a well-to-do, refined

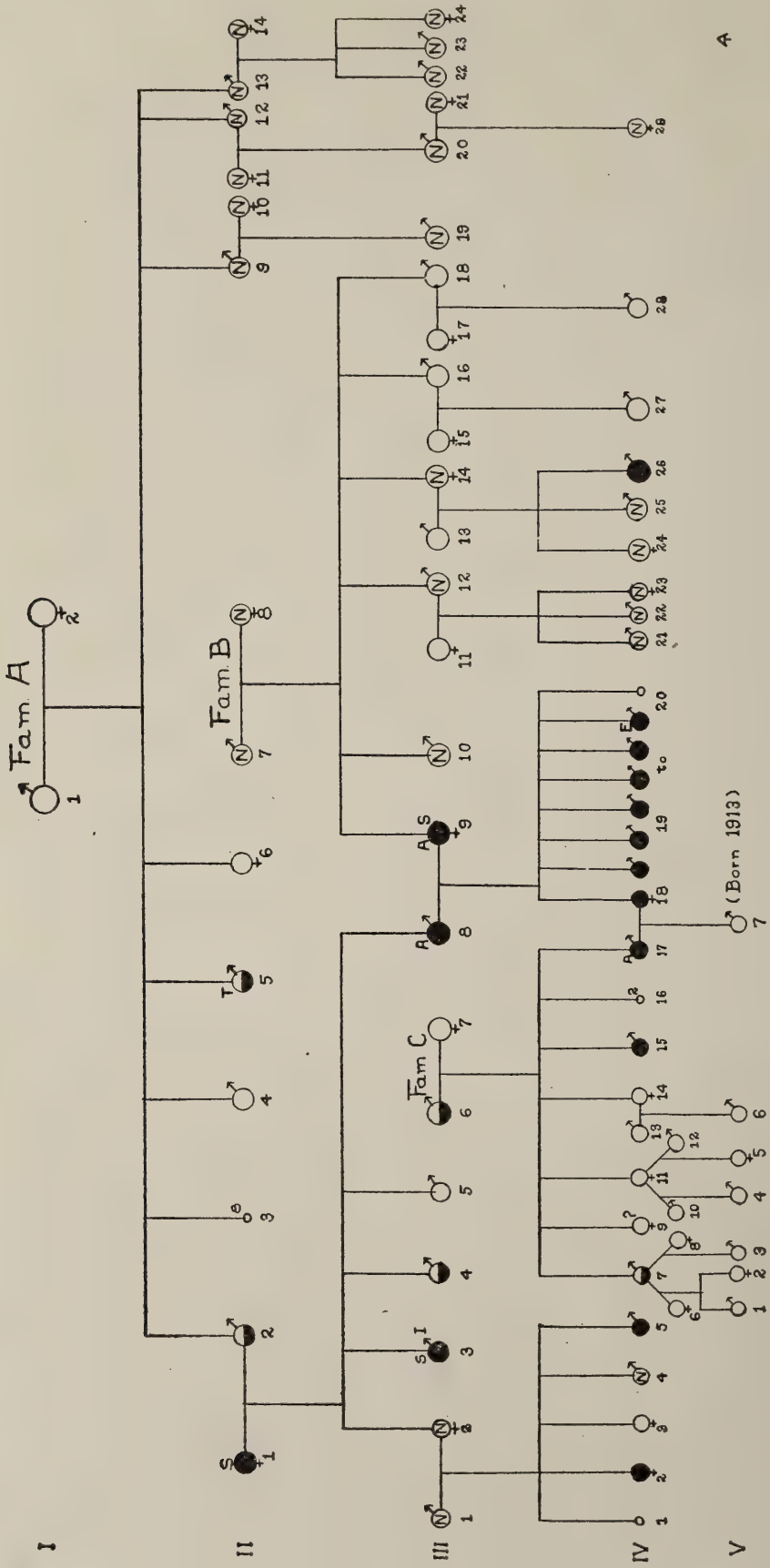


family (Fam. A), much ashamed of their degenerate relatives to be described presently. This man, after he became a confirmed drunkard, had a second wife (I-2), who was feeble-minded; three generations of their descendants show among their number 15 feeble-minded, 4 alcoholics, 2 prostitutes, and only one or two normals. Three other strains of feeble-mindedness have so far been introduced into this line (II-3, II-9 and III-7), thereby intensifying the taint and sealing the fate of future generations.

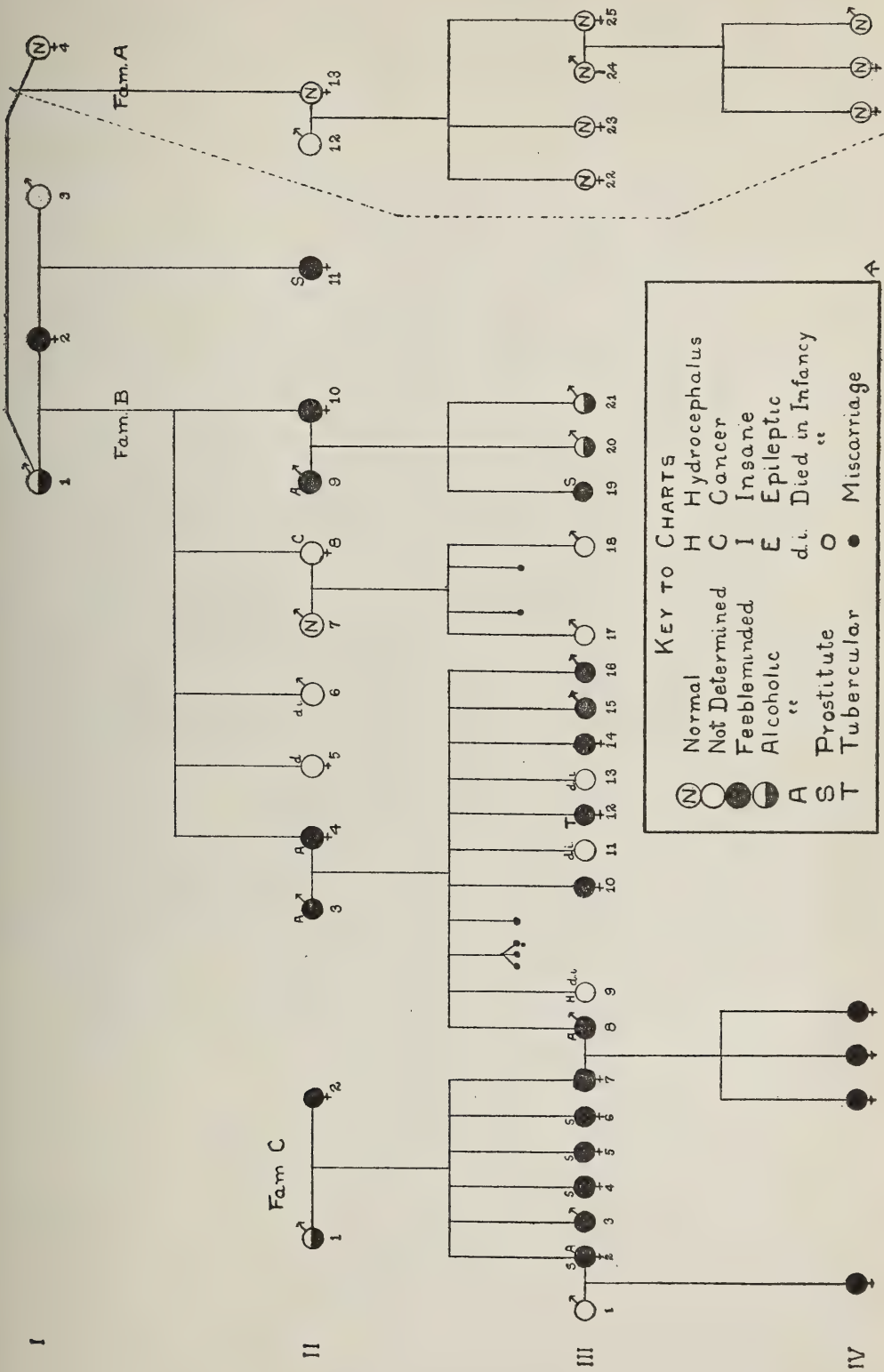
We see from a study of these families how a taint may lie hidden or recessive in a family (Fam. B, Chart I) for a number of generations, dominated by normality, as Davenport believes. We see how it may appear in but one member of a whole generation (III-9 and IV-26). When this member, in whom the recessive trait expresses itself, mates with another defective (III-8), (and a study of the charts indicates that such is almost invariably the case), there remains no normality to dominate the abnormality, and a progeny of defectives results (IV-18 to 20). We see, also, how alcoholism, feeble-mindedness, insanity, epilepsy, immorality and shiftlessness are associated in such pedigrees, and how one may beget another. On the other hand, we are shown that normality, thrift and intelligence are handed down the generations in a similar manner and produce refined, respectable and respected families. There is no better illustration of these facts than the Kallikak family, compiled by Goddard, a monument in the study of feeble-minded and degenerate inheritance.

Not only are defectiveness and mediocrity subject to inheritance, but superior moral and mental qualities and intellectual brilliancy tend to be transmitted from generation to generation. A famous example of such a heredity is presented in the case of the intermarriages of the families of Wedgwood, Darwin and Galton. In five generations we find 16 men of scientific ability, nine of whom are Fellows of the Royal Society of England.

In the face of such facts and revelations, Eugenics assumes an aspect, real and vital. Positive Eugenics, or the efforts to breed humans of high physical, mental and moral qualities, although desirable in itself, becomes a mere side issue to the real Eugenics. This may be called negative Eugenics. Its problem has been presented; its aim is to eliminate, as far as possible, an inheritance which is so appalling; its methods take various forms with varying degrees of practicability. They range from edu-







cation in the dangers to society of defective propagation, through legislation, through segregation, to outright sterilization. They must depend for their success on public opinion. Public opinion, in turn, must be formed and moulded by education. The doctors and ministers of Cleveland showed great wisdom when, at a recent meeting at the Academy, they pointed out the necessity for waging an educative campaign in venereal disease before promoting matrimonial restriction.

Education, then, is at present the principal weapon of the eugenist; not education of the individuals concerned, to be sure, but of the public. When the public becomes alive to the growing danger to society of the multiplication of degenerates, and especially when the great economic significance is demonstrated, will public opinion call for preventive measures. When public opinion calls for such measures, not until then will their success be to any degree assured. When we can show that it is not the slums which produce the degenerate, but that the degenerate produces the slums, will the inertia of the authorities be overcome. We must endeavor to point out how many philanthropic measures are somewhat misdirected, in that they add to the comfort and happiness of defectives and thus favor their multiplication. We must remember that the duty of society is to protect itself, not only in the present generation, but equally in the future generations. By supplementing philanthropic with preventive measures, both duties can be fulfilled. One thing, at least, is certain. By bringing human defects, mental, moral, and physical, into the province of Mendelian heredity, the eugenist has made us aware of real and far-reaching social dangers. Can society regard these any longer with indifference?

#### Bibliography

- Darwin: *Origin of Species*.
- Doncaster: *Heredity*, 1912.
- Galton: *Hereditary Genius*, 1869.
- Goddard: *The Kallikak Family*, 1912.
- Pearson: *Grammar of Science*, 1912.
- Punnett: *Mendelism*, 1911.
- Thomson: *Heredity*, 1908.
- Vries de: *The Mutation Theory*, 1910.
- Weismann: *The Germ Plasm*, 1893.

*Western Reserve University.*



**JUVENILE PARESIS—WITH REPORT OF A CASE**

By W. B. LAFFER, M. D., Cleveland, Ohio.

I wish to report the following case of juvenile paresis which I showed before the Academy of Medicine of Cleveland, April 17, 1914.

J. S., male, age 19, oldest child in family. Has four brothers and one sister living and well. Mother of patient had three miscarriages before patient was born. Father and mother living and well. Father was a salt water sailor and went around the world before marriage. No nervous or mental disease in family.

Patient seemed normal at birth, infancy and early childhood. Learned to walk at one year and nine months and began to talk when a little past two years of age. Patient has never had any convulsions and in fact has never been sick before, excepting with colds. Rhinitis has been rather a chronic condition with him. Patient has never had any bad habits, but had a good disposition. Patient started to school when six years old, but could only reach the fourth grade when he stopped school at the age of fifteen.

All his life parents noticed that if they awoke him out of a sleep suddenly he was very nervous and foolish.

Medical aid is sought because for a number of months back the patient has been unable to hold a job, but for a few weeks when he would be discharged for being very forgetful and nervous. This forgetfulness and nervousness was first noticed six months ago.

Hebetude has gradually appeared and now he sleeps a great deal of the time. Will stand in one position for hours at a time. Has no headache, vomiting and sees and hears well. Lately has become very shaky and has almost daily urinated or defecated in his clothing. "Eats as much as two men," the parents say. Never gets lost, but is able to go around in city and find his way back.

Examination shows boy not as tall as usual for his age, but sturdily built. Head small and round, hair very heavy, suggesting the syphilitic wig. Sagittal suture raised into marked ridge; coronal also elevated. Nose saddle-back shape with marked ozena. Jaw heavy—teeth somewhat grooved. No Keratitis evidenced. Left pupil largest, although both pupils are rather small. Very slight reaction to light or accommodation; good reaction to

convergence. No external eye muscle paralysis and no nystagmus. Eye grounds normal. Marked tremor of face, tongue, lips and eyelids as well as of hands, feet and legs.

Reflexes of upper and lower extremities normal and no abnormal reflexes present. No Romberg. No incoordination of upper or lower extremities, but is slightly unsteady when walking or standing on one leg. No sensory disturbance obtainable, but his mental condition made this test rather unsatisfactory. Shows marked dysarthria; slurring and omitting syllables. Has stool in trousers at time of examination. No pubic hair or hair under arms—in both locations only a few scattered hairs. Penis and testicles very small; only about like boy of twelve years.

Patient shows no insight into his condition, but takes all with indifference. Has very poor memory for past and recent events. Understanding very slow. Judgment poor. Cannot tell day, month or year. Cannot add or multiply simple figures. Cannot say months backwards.

Urine shows nothing abnormal. An examination of the cerebrospinal fluid and of blood by Doctor Stoner showed positive Wassermann reaction in both, and spinal fluid showed fifty-seven lymphocytes to the c. mm., a marked globular increase and Lange's test showed the color reaction for paresis.

Doctor Stoner made a Wassermann test of the blood of the father and found it negative, while the blood of the mother and next oldest child to patient was positive. The blood of the youngest child was negative. He was unable to get spinal fluid from these patients or blood from the other children.

It is of special interest that the father's blood was negative and that the mother had three miscarriages before the patient's birth, and that she showed positive reaction in her blood; as did the patient's blood; and the blood of the child born just after the patient, while the blood of the youngest child of the family was negative.

I wish to call attention to the signs of infantilism presented by the patient, which condition is often seen in cases of juvenile paresis.

The juvenile form of paralytic dementia is quite distinct and was apparently first recognized as late as 1877 by Clouston. Arsimoles and Halberstadt, after a study of 230 cases in the literature, limit the term of juvenile paresis to cases developing previous to or during the twentieth year of age. We have an



early and late form of juvenile paresis, the early form occurring as early as nine years of age, while Miller reports cases of paresis in adults due to congenital syphilis where the paresis developed at the respective ages of 42, 43 and 53.

The juvenile type of the disease seems quite rare, for during the past ten years there has been but one case admitted to the Cleveland State Hospital for the Insane. Asylums usually show from 10 to 15 per cent of other paretics admitted. It is likely, however, that modern laboratory methods by aiding in separating the condition from other forms of mental defects will show the disease to be more common.

The etiology is always syphilis, that most interesting, most wonderful, most far-reaching and most terrible disease. It is said that syphilis enters into the etiology of one-third of the diseases of the world, and the list of nervous diseases where it seems a causative factor is increasing daily. Mott says it is probable that primary optic atrophy, Erb's spinal paralysis and certain cases of amyotrophic lateral sclerosis may be primary post-syphilitic dystrophies, and the French lay stress on the frequency of syphilis, causing progressive muscular atrophy.

There is nothing surer in medicine than the axiom "no syphilis, no paresis or tabes." Krafft-Ebing stated the dictum, "General paralysis is a product of syphilization and civilization." It is probable that about 10 per cent of syphilitics develop lesions of the nervous system. One-half of the cases of cerebrospinal lues develop in the first year of the infection—paresis and tabes develop much later.

Hermann investigated the families of 120 paralytics. He found that the number of miscarriages was only 1 per cent higher than the general statistics, while the number of childless marriages was very much less than ordinary, 10 per cent to 15 per cent against 23 per cent. (Bailey and Mendel found both paretics and tabetic women showed about 35 per cent of sterility.)

Examination of 124 of the offsprings of these 120 marriages of paralytics ranging from one to thirty years, showed six with direct bodily defects such as malformations, stuttering, etc. Mental abnormalities were present in 54 cases, consisting of 2 cases of dementia praecox, 4 cases of paresis, 1 case of epilepsy, 1 suicidal psychopathic. While the rest of the mentally abnormal were mentally backward, irritable and stupid.

Mettler says 2 per cent of the syphilitics develop paresis,

while Pilcz states that among officers with the Austrian army carefully observed and treated 4.67 per cent of the syphilitics develop paresis and more often the disease follows the benign cases.

Babinski pointed out in 1900 that systematic examination of persons married to tabetics and general paralytics has proved that conjugal parasyphilis is much commoner than had hitherto been suspected. As tabes and general paralysis are relatively rare sequels of syphilis, Babinski concluded that conjugal syphilis is fairly common.

Barré recorded twelve cases in which the husband or mother was suffering from tabes or general paralysis, while the spouse and children were apparently healthy. In six of these cases, however, the spouse and in three the children gave a positive Wassermann reaction and in three the reaction was negative. This shows as well as the cases here reported, that it is well to keep under observation the children of our syphilitics and meta-syphilis and do serological work on them.

Trapet, Kleinberger, Sträussler and others have reported many cases showing that there is a frequent association of developmental brain defects with juvenile paresis. Rondoni concludes that in such hereditary syphilitics before actual development of the syphilitic or meta-syphilitic disorder, the brain presents evidence of a marked developmental disorder or arrest. These factors most often involve the cerebellum and we see numerous Purkinje cells with two or three nuclei.

Sträussler thinks juvenile paresis stands in close relation to the hereditary disease of the cerebello-spinal system such as Marie's Hérédó-ataxia cérébelleuse and the juvenile form of amaurotic idiocy. All tend to occur where there are developmental defects of the nervous system.

Fischler says the relation of syphilis to the so-called para- or meta-syphilitic affections is shown by, 1st, the infantile-juvenile tabes and paresis; 2nd, the conjugal tabes and paresis; 3rd, the family tabes and paresis; 4th, the group of infections where a number of individuals contracting their syphilis from the same source develop either tabes or paresis.

Naturally offsprings from meta-syphilitics are more liable to develop paresis or tabes, for as Nonne and Obersteiner have shown there is a family predisposition to paresis or tabes, for in



certain families syphilis contracted from a variety of sources leads with unusual frequency to the development of paresis or tabes.

Souques tells of a family of four persons where father died of paresis and the mother and two daughters had tabes. The cases of tabes in heredo-syphilitics are not nearly so numerous as the cases of general paresis.

Some believe we have a *Lues Nervosa* (*Syphilis à virus nerveux*) where a special form of syphilis shows a very pronounced affinity for the central nervous system. Per example, the cases of conjugal syphilis of Erb, Fischler, Nonne and cases where syphilis from the same source results in an unusual number of tabes and paresis. In one instance five men contracted syphilis from one source and all became either tabetic or paralytic. Mott reports that two professional men not related who acquired syphilis about the same time from the same nurse and ten years later both developed paresis. Erb narrates an instance of four patients infected by the same woman who became the subjects of either tabes or general paralysis. Morell-Lavallee tells of a woman who was mistress to five men in succession who died in turn respectively of syphilitic meningitis, paresis, paresis, paresis, *Folie syphilitique*.

Brosius relates that seven glass-blowers suffered with chancre of the lip and of five seen later four had either tabes or paresis.

We now must consider the great variety of syphilitic lesions of the nervous system due to primary, secondary, or tertiary syphilis and the question of direct lesions and indirect or meta- or parasymphilitic lesions. We are coming to accept Wilks' dictum enunciated in 1867. "The term tertiary syphilis is objectionable; there is no real distinction between the primary, secondary, and tertiary forms." Is there any difference except of degree and location of the lesions between cerebrospinal syphilis, primary optic atrophy, paresis and tabes? Ten per cent of the paretics have tabes-like lesions and 4 per cent optic atrophy.

The term "parasymphilis" was introduced by Fournier in 1894 to describe certain changes of an atrophic or degenerative nature which might follow a syphilitic infection.

He classes syphilitic affections as follows:

"I. Acquired syphilis.

- "1. Acute hystero-neuro-asthenias of the secondary period.
- "2. Different neurasthenic manifestations of a more advanced stage.
- "3. Tabes.
- "4. General paralysis.
- "5. A special form of epilepsy.
- "6. A special form of muscular atrophy.

"II. Heredo-syphilis. Numerous dystrophic troubles, general or partial; malformation notably dental; arrest or retardation of physical and intellectual development, infantilism, dwarfism, inborn lack of vitality, cachexia, marasmus, rickets, hydrocephalus, certain forms of simple meningeal trouble in early life, possible certain cases of true epilepsy, juvenile tabes, spinal and optic juvenile general paralysis."

The local and general failure of development may be due, (1) to the direct influence of the virus upon the life and growth of the tissues, or (2) indirectly to exhaustion of the specific energy of the cells of the central nervous system by the establishment of an altered metabolism, of an unknown chemical nature, (3) by the changes in the blood and blood vessels, and in the lymph and lymph channels.

According to Erb, para- or meta-syphilis is to be regarded, in view of recent investigations, as a genuine syphilitic disease, although of a peculiar nature. One of the chief problems consists in the investigation of the biology of the *Spirochaeta pallida* (different races, the changes which the same undergo in repeated passages, by antigens, special predisposition of the host, etc.). The occurrence of cerebro-spinal lesions can, with little doubt, be referred to the neurotropic peculiarities of certain races or spirochaetes. With reference to the pathogenesis of gliovascular and purely degenerative changes there are still differences of opinion, but for the former a direct action of the spirochaetes is probable.

Fildes considers that syphilis of the central nervous system consists of two main divisions—one largely or entirely confined to the lymph vascular tissues, and the other largely or entirely confined to the brain substance. In each of these two divisions



varying numbers of spirochaetae and even more so varying sensitization of the tissue will occasion lesions of varying clinical importance. In the vascular tissues these will range from a slight meningitis to a gummatous process, while in the brain from a slight meningo-encephalitis to a tertiary encephalitis (dementia paralytica).

Head says para-syphilis of the nervous system is purely a clinical conception and the manifestations are an expression of the reaction and necrosis of the hypersensitized area of the nervous system evoked by reappearance of the spirochaeta pallida, and this reaction is as truly syphilitic as the production of gummata. The difference merely lies in the nature of the tissues participating in the reaction. In tertiary syphilis the connective tissue is capable of repair, and the focus is readily reached by the remedial agents. In para-syphilis the reaction of the essential nerve elements leads to their death, and antisyphilitic remedies cannot readily reach the spirochaeta.

Noguchi's startling and enlightening discovery helps greatly in solving this question. He found in 200 cases of general paralysis (even under poor staining conditions) the spirochaeta pallida was present in 48 brains. The organism was not found in the pia and in the neighborhood of the visible vessels as in cerebral syphilis, but instead they were found deep within the tissues of the cortex. They were almost always in the nerve-cell layers of the cortex; seldom in the marrow and never in the external layer.

Moore, an associate of Noguchi, says the finding of the spirochaetae afford a tangible cause for the chronic inflammatory reaction if not for the degenerative changes in paresis. The spirochaetae were found in all layers of the cortex excepting the outer layer and occasionally subcortically.

Doctors Noguchi and Moore found no ratio between the numbers of spirochaetae and the severity of the paresis.

Noguchi's discovery tends to prove that paresis is not an indirect effect of syphilis, but is a disseminated spirillosis of the brain, i. e., a direct syphilitic infection. It is likely similar findings will be made with locomotor ataxia, especially when we consider that many think tabes and paresis are identical diseases differing only in the lesions being more marked in cord and brain respectively.

Individuals vary as to which group or system of neurones

are liable to a syphilitic degeneration, but the usual order of frequency is: 1st, the ciliary ganglion; 2nd, the spinal sensory protoneurones; 3rd, the cortical association neurones; 4th, the optic nerve; 5th, the pyramidal tracts; 6th, the anterior cornual cells—lower motor neurones.

While syphilitic lesions may occur at random, yet selective action of the disease is startlingly marked, as, for instance, the Argyll-Robertson pupil, which is for all practical purposes only met with in cases of parasymphilis.

There is also great latitude as to the length of time after the syphilitic infection that the various lesions of the nervous system are first manifest. Jarisch called attention to the increased superficial and deep reflexes in recent syphilis and Fournier observed regional analgesia during the secondary period.

In the acquired form of syphilis Head found by a personal examination of thirty-three cases where the date of the infection was accurately known that the average date of the onset of nervous manifestations was two years and eight months after infection, but five cases occurred within one year of infection. The earliest period at which definite signs were discovered was three months. Ravaut showed the frequent existence of lymphocytosis in spinal fluid during the secondary period due to meningeal lesions. Practically all cases of brain syphilis occur during the first ten years after the primary sore, while it is rare for general paralysis to develop during the first ten years after the syphilitic infection, but occurs on the average of about fifteen years. Fournier says paresis never occurs during the first two years.

Mott says whereas in syphilitic brain disease it is the rule to find evidence of tertiary skin lesions, in general paralysis it is quite the exception, and while occasionally an aneurysm exists, yet not nearly so often relatively to the numbers, as syphilitic brain disease.

March and Petit, however, report a case they label "Paresis Praecox" proved by autopsy, where the paretic symptoms appeared at the age of 22, only two years after infection.

Deffendorf states the average age of the patient at the time of onset of the paretic symptoms was 42 years in 172 cases.

Katzenellenbogen advanced the theory that the earlier in life syphilis is acquired the longer the interval before paresis.

Juvenile paresis, meaning the form arising from hereditary



lues, has occurred as early as at the ninth year of age and as late as 53 years of age in the case reported by Muller.

The juvenile paretic may make a comparative normal development up to five years of age when the child's mentality seems to drop. There is often the signs of congenital lues, such as "Hutchinson's triad" present. In older children, ten to sixteen years of age, this failure in mentality is more apparent. Growth is retarded usually and dwarfness and infantilism are sometimes observed.

The juvenile type of paresis recalls the question often asked especially on the witness stand, namely, "whether the mental or physical symptoms are first to appear." It is to be answered that while often the mental symptoms are first noticed by the patient, or his associates, yet the signs most constantly present first when closely observed by the physician are usually physical rather than mental.

In the diagnosis of juvenile paresis as the cause of the individual's mental disturbance we have to consider a similar variety of possibilities as in the case of a syphilitic adult.

Rémond and Voivenell state that the differential diagnosis of true paresis from pseudo-paresis is impossible in a series of cases. They believe that paresis is not a disease *sui generis*, but a symptom-complex caused by different lesions whose chief characteristic is the diffuseness of the cerebral lesion. They compare paresis to epilepsy and hysteria. They agree with Klipper and differentiate paresis histologically: 1st, primary inflammatory progressive paralysis or classical Bayle's disease (parasyphilitic); 2nd, the secondary paresis associated with other lesions; 3rd, the degenerative paresis characterized by diffuse degeneration or diffuse lesions with specific signs, and in this class we have the alcoholic, neuritic and arteritic pseudo-paralysis.

Plaut, while accepting Kraepelin's two important groups of luetic psychoses—simple syphilitic enfeeblement and syphilitic pseudo-paralysis—offers in addition to these two the following forms of luetic psychoses: (1) The paranoid forms combined with tabes; (2) paranoid symptomatic picture; (3) hallucinatory confusional state; (4) psychical manifestations accompanying syphilitic cardiac affections; (5) psychoses whose symptomatic phases resemble maniac depressive insanity; (6) mental disturbances due to syphilis as trauma (psychical); (7) mental symp-

toms occurring on bases of hereditary syphilis in form of psychopathic inferiority.

To these may be added true paresis from acquired syphilis, tabo-paresis and the juvenile form of paresis.

Mott says all the cases of tabes that come into asylums are not tabo-paralytics; yet nearly all those that die in asylums are, although this fact may be overlooked if a microscopic examination of the brain be not made, for as a rule the wasting of the brain in these tabo-paralytic cases is not nearly so marked as in ordinary general paralysis.

General paralysis is manifested by a bewildering multiplicity of forms often changing in the individual from day to day. Binswanger divided the types anatomically into meningitic, hydrocephalic, hemorrhagic, and tabo-paretic.

From the monographs of Simon, Krafft-Ebing, Joffery, Obersteiner, Klippel and Kraepelin paresis may be classified for convenience somewhat artificially as follows:

(1) Simple dementing types, (2) simple depressive types, (3) the expansive or so-called classical type, (4) the agitated type, (5) the irregular type with localized symptoms, Lissauer's tabo-paretic form, (6) juvenile paresis. Schaffer and others believe that tabes is a spinal paresis and paresis cerebral tabes. Kraepelin is opposed to this view and says the histopathology and clinical pictures are against this conception.

The juvenile form is characterized by (a) predominance of the demential form, rarity of maglomania and depression, and still greater rarity of ideas of persecution, (b) by the frequency of epileptiform seizures, (c) the pupillary reaction being often but simply sluggish, (d) by the patellar reflexes being but rarely exaggerated, (e) by the longer duration of the disease, (f) the greater frequency of cord lesions.

Juvenile paresis, unlike the acquired form of paresis, affects both sexes equally. The mental and physical development of the child is often greatly retarded, but there may be a comparatively normal development to five years of age—certain non-developmental forms probably belong here, but seems to droop, which is more apparent in older children, say ten to sixteen years of age. The mind seems to grow more childish. The prodromal symptoms are slow and remissions rare and of short duration. Hallucinations usually fail, there is an inclination to confabulation; patient rarely commits crimes (unlike the acquired form) and has even



little inclination to small wrongdoings seen with other mentally defective youngsters.

There is but rarely a prominence of sexuality. Convulsive attacks have no relation to the prognosis or duration of the disease which may last fifteen years or longer.

Luetic lesions are more often seen than with the acquired syphilitic form of paresis and take the character of the ordinary hereditary luetic lesions. The eye muscles are rarely paralyzed and optic atrophy is not frequent.

There is a progressive defect of intelligence, of judgment; while rarer than with other forms of paresis, ideas of grandeur when present take the infantile character and we get the "Kleine Größenideen" of Bohoneik. Symptoms rarely seen in adults occur here, such as automatic sucking, smacking and chewing movements.

Growth is retarded usually in infantilism and dwarfness are observed.

We have gradually the formation of severe dementia with spasms, contractures, atrophy and the exitus occurs often from the unavoidable decubital sloughs, "Schluckpneumonie" or other septic trouble. While the average course of the disease with the non-juvenile type of paresis is two or three years, 50 per cent dying within two years from the frank onset of the disease and the "galloping" cases within six months—we see, however, with the juvenile paretics a much longer duration.

Remissions which constitute a very striking feature with the non-juvenile type, occurring in 20 per cent of the cases and may last many years are much less frequent and of shorter duration in juvenile paretics.

The diagnosis of juvenile paresis is not as often made as the probable frequency of the cases would justify. It is most often confused with active congenital acquired syphilis, epilepsy and imbecility of a non-syphilitic nature. The history of the child's development, the signs of congenital lues in the patient or in the *Geschwister*, the progressing dementia, the pupillary and other reflex disturbances, the dysarthria, ataxia and serological findings make the diagnosis fairly easy.

It is probable that too much reliance is being placed on the modern sero-diagnostic methods in the diagnosis of nervous and mental disease. One should remember that a syphilitic has the

same birthright to contract other diseases as the rest of us and all neurological pictures should not be warped to fit the serological findings.

The Wassermann reaction is by no means an infallible test and it is yet too common to get contradictory reports on the same blood from several of our best laboratories. A negative Wassermann reaction no more excludes syphilis or paresis than does a positive one prove that the disease in question is syphilitic—but the result should only be considered as confirmatory evidence. It is probable that with the more general employment of the watery solution of the antigen, the titration method, and a larger quantity of the serum or spinal fluid, more accurate results will be obtained with the Wassermann. As compared to the Wassermann test of serum or spinal fluid a much greater reliance may be placed on finding a leucocytosis in the spinal fluid, especially if there are numerous plasma cells present, and a globulin increase.

The Lange test bids fair to take front rank in determining not only whether the patient is syphilitic, but also to enable us to say whether there is active cerebrospinal syphilis, tabes or paresis present.

One must always bear in mind that a positive Wassermann in blood and spinal fluid with globulin and cell increase in spinal fluid may be found with cerebrospinal lues and the prognosis be a favorable one instead of the hopeless picture of paresis. A negative finding in the spinal fluid as to Wassermann reaction, globulin increase and leucocytosis is of greatest value in excluding paresis. For while the per cent has been variously estimated a late series of cases showed a negative Wassermann reaction in 20 per cent of paresis, yet in these cases there is almost certain to be a cell or globulin increase, and a conclusive Lange reaction in spinal fluid.

Often the history of the case, the physical signs, the type of the mental disturbance are of more value than the laboratory findings. One should remember that certain cases of brain syphilis may develop like general paralysis with a gradual falling off in the general efficiency and may show a well-marked degree of euphoria with the expression of grandiose ideas.

The histology of paresis shows that the disease is not limited to the nervous system, for there is often lesions in bones, arteries, etc.

Hampe states there is nearly always an atrophy of the three



frontal convolutions of the brain, most marked in the first frontal or in the region of the Flechsig's anterior association centers. He also found marked atrophy of the upper part of the central and parietal convolutions.

There is a pial infiltration, periarteritis and lymphocytic infiltration—plasma cells are frequent in and around the small vessels.

Rheindorf thinks we may exclude a paresis if the brain cortex fails to show a diffuse plasma cell infiltration. "Wir werden heute schon eine Paralyse ausschliessen dürfen, wenn eine diffuse Plasmazelleninfiltration in der Hirnrinde nicht nachweisbar ist."

Nissl's view is that the absence of plasma cells in the cortex excludes paresis, but their presence is not pathognomonic. This is also Behr's view after a study of 115 brains from asylums.

There is new blood vessel formation with extensive changes in the vessel walls especially of the adventitial region and a development of new connective tissue about the perivascular and Virchow-Robin lymph spaces which interfere with the lymphatic circulation. Noguchi, Moore and others have demonstrated the *treponema pallidum* in the brain a considerable distance from blood vessels and lymph channels.

The prognosis of true paresis, either juvenile or from acquired syphilis is extremely unfavorable and it seems probable that the cases that have in previous years been reported as cured have really been pseudo-paresis due to active syphilis or were other psychoses of a non-syphilitic nature perhaps affecting a syphilitic. Many so-called cures are simply remissions of the disease.

The newer plans of treatment such as the Swift-Ellis method may give better results, yet it does not convey much hope to the writer from what he has seen and read of cases treated by this method and from the fact that the *spirochaete pallida* is found deep in the brain substance away from vascular and lymph channels.

The treatment of paretics, aside from the general measures used in the handling of such serious mental disturbances is still thorough antiluetic treatment with mercury, Salvarsan or neo-salvarsan, which will enable one to cure the cases due to active syphilis at least.

The Swift-Ellis method should be given a good trial especially in our institutions, where due allowance should be made for remissions and for the cases of wrong diagnosis.

The more I see of the results of Ehrlich's arsenic preparations and the willingness of their advocates to combine them with mercury, the more I am convinced that almost always mercury is the more efficient remedy in treating syphilis in all its manifestations. Nonne states that more clinical experience is necessary in order to decide which forms of syphilis are more favorably influenced by salvarsan and which by mercury and he agrees with O. Vogt that, "Salvarsan is contraindicated in widespread destruction of the nerve substance, widespread softening of sclerosis, or systematic degeneration as well as general cerebral arterio-sclerosis."

In treating the cerebrospinal syphilitic or tabo-paretics most workers have judged their results by the change in the spinal fluid after treatment, especially the lessening of the cell count.

Mott has stated that, "lymphocytosis in tabes and general paralysis does not diminish with antisyphilitic treatment—an important point in differentiating cases of pseudo-tabes or pseudo-general paralysis from the true form." The writer is not prepared to go this far and believes that an alteration in the reaction or in the cell count does not necessarily mean a modification of the clinical course of the disorder.

Much favors Strumpell's hypothesis that syphilis bears the relation to tabes and paresis that diphtheria bears to post-diphtheric paralysis, and one should not expect antisyphilitic treatment to cure the result of the action of syphilis toxin any more than to expect serum to cure a post-diphtheric paralysis."

But the presence of *treponema pallidum* in the brain gives us some ground upon which to base our antisyphilitic treatment.

#### Bibliography

1. Fairbanks, Arthur Willard: General Paresis in Childhood. *Jour. Amer. Med.*, Vol. LI, No. 23, p. 1946.
2. Klieneberger, Otto Ludwig: Über die Juvenile Paralyse. *Allgem. Zeitschr. f. Psychiatrie*, Bd. 65, H. 6, p. 936.
3. Joffroy: La paralysie générale juvénile, chez un sujet de 23 ans, etc. *L'Encéphale*, 3 année, No. 7, p. 1.
4. Janssens, G., and Mees, R. A.: Ein Fall von progressiver juveniler Demenz, etc. *Jour. f. Psychol. u. Neurologie*, Bd. xi, H. 4/5, p. 157.
5. Hudovering, Carl: Infantile progressive Paralyse. *Psychiatr. Neurol.*, Section d, *Budapester Ärzte*, veinées 18, 18, xi., 1907.
6. Hermann: Paralytiker-Kinder. *Münch. Mediz. Wochenschr.*, No. 20, p. 1025.



7. Hampe, J.: Beitrag zur Psychopathologie der progressiven. *Paralyse Monatschr. f. Psychiatrie*, Bd. xxvi.

8. Behr, H.: Über die Bedeutung der Plasmazellen für die Histopathologie der progressiven Paralyse. *Allg. Zeitsch. f. Psychiatrie*, Bd. 66, H. 3-4, p. 496.

9. Rheindorf: Zur Plasmazellenfrage bei progressiven allgemeinen Paralyse. *Virchow's Archiv. f. Pathol. Anatomia*, Bd. 198, H. 2, p. 280.

10. Rémond: Chevalier-Lavaure et Voivenel. *Le Syndrome Paralysie générale, L' Encéphale*, No. 10, p. 277.

11. Mott: Syphilis of the Nervous System, Power's & Murphy's System of Syphilis.

12. Trapet, Arthur: Über Entwicklungsstörungen des Gehirns bei Juveniler Paralyse und ihre Bedentum für die Genese dieser Krankheit. *Archiv. f. Psychiatrie*, Bd. 47, H. 3, p. 1293.

13. Klieneberger, Otto: Ein Fall von Balkenmangel bei Juveniler Paralyse. *Allgem. Ztschr. f. Psychiatrie*, Bd. 67, H. 4, p. 572.

14. Sträussler. *Ztschr. f. die. ges. Neurol. u. Psychiatrie*. Bd. II, H. I, p. 30.

15. Alsimoles et H. Alberstadt. La paralysie générale juvenile. *Ann. Méd.-Psychol.*, 9 S. T. XI, No. 3, p. 384.

16. Plaut, F.: *Zentralblatt für Nerv. u. Psychiatrie*, Sept. 15, 1909.

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**Leprosy Control.**—Isadore Dyer, New Orleans (*Journal A. M. A.*, July 25, 1914), says that the modern interest in leprosy was excited in the decade between 1880 and 1890 and was increased by the British Commission report on leprosy in India. The Berlin conference of 1897 was the result, and its recommendations as regards isolation of lepers are quoted. The United States is one of the few countries that has ignored these findings. There have been two leprosy surveys by the United States Public Health Service, and the first report found 278 cases, 155 of them in Louisiana, and the rest scattered. The second report, he believes, showed practically the same results. He considers these figures far below the truth and without statistical value. Since 1894 the Louisiana Leper Home has cared for nearly as many lepers as the Public Health Service Report showed for the whole United States. It has a gradually increasing population of nearly 100 inmates. Texas has a number of cases, about 25 known, and estimated at twice that number. Florida has a number of cases, and Mississippi and Alabama. In all of these states the majority have originated there. California has had about 30 cases under control for a number of years. New York has a number of cases and they are scattered through other states. The disease is wide-spread and without much hindrance or control, and the easy entrance from foreign countries is shown by the New York clinics. In the winter of 1911-12, 17 were shown at a meeting of the Academy of Medicine, only two or three of them native born. The indifference of some states is in marked contrast to the hysteric activity of others, and the federal government has been apathetic until now to this question. In our outlying possessions there are large provisions for leprosy, and Dyer asks why more has not been done at home. It is true that good work has been done in the study of the disease and more in the care of it in this country than in the colonies, but how much more, he says, could be done with governmental control and governmental opportunity. The foci of the disease are already recognized in Minnesota, New York, California, Louisiana and Texas, and the sporadic cases in other states indicate new possible areas of infection. He reproduces the Lafferty bill that has been before Congress for a year for a national leper asylum, and says that it should become a law and its provisions carried out at once. There cases could be studied according to their type, and stage and sanitary conditions provided for treatment and a possible cure.

## THE CONSERVATION OF HEARING\*

By JOHN G. WISHARD, A. M., M. D., Wooster, Ohio.

There may be found in every vocation in life, a considerable number of persons who, suffering from some well-marked physical disability are striving earnestly and heroically to take and hold their place among men. The blind and deaf are both typical of this general class. We are apt to think, however, that with the exception of touch and smell, hearing of all the senses can best be spared, and for this reason the deaf and partially deaf, do not get that consideration and healthful sympathy to which they are entitled. They are expected to take and hold their places in business and society notwithstanding their handicap, and this too, with very little sympathy or consideration from the general public.

When we reflect upon the loss to the state on account of complete and partial deafness, not considering the inconvenience and oftentimes mental suffering and perturbation of those subject to this disability, we are confronted at once with the question whether or not something can not be done by our profession to lessen this evil. The question can not be dismissed without a reasonable consideration so long as the teachers in our schools for the deaf insist that nearly two-thirds of their pupils are adventitiously deaf and not congenitally so. If it be true that more than one-half of the pupils in our institutions for the deaf, suffering from adventitious deafness, acquired their disability during the first ten years of their lives, is it not a reflection upon our professional work? Again, what shall we say of that mighty host of partially deaf, wonderfully handicapped for life, who never find their way into such institutions, but are trained in the public schools?

Before going further I trust that you will anticipate the purpose of this paper, which is not only to remind us of our responsibility to our little patients, but to call our attention anew to some of the well-known and more useful otological procedures that may be practiced by any of us who are willing to take the time and trouble to prepare ourselves for them. I must confess that the brilliant and alluring fields of general and abdominal surgery are, to the American temperament, more enticing than the plodding paths of otology. The modest pretensions of otology have been eclipsed by the marvelous strides



of general surgery, and perhaps for this reason the need of good otological work on the part of the general practitioner remains. Witness the report of Ponfick of Breslau, who while professor of pathology, examined the ears of 100 consecutive cases of infants under three years of age who were supposed to have died from various diseases. In only nine cases had trouble in the ear been suspected, and yet among these 91 cases where trouble in the ear remained unrecognized, he found 168 diseased tympana.

That there is a direct relationship between epilepsy, gastro-enteritis and other diseases of child life and the ear can not be gainsaid. It would be interesting to know how many of Ponfick's cases had been doped with paregoric, bismuth, calomel and other usual remedies. It would be equally interesting to know how many cases we, as general practitioners, are treating for other conditions when the real trouble in the middle ear or eustachian tubes remains unrecognized.

To simplify the matter which I wish to present, I have divided the causes of these usual ear troubles into three cardinal groups. Before presenting them permit me to state that I am not unmindful of the objections raised by some very eminent otologists to any division of this kind. Their objection is that we hear with our brains and not with our ears, the latter being only a perfect apparatus for the gathering and transmission of certain external impressions which we are wont to call sound, and this being an entity for this specific purpose is incapable of being divided without impairing the whole. In other words, it gives an independence and individuality of parts which can not exist. I need not tell you that I agree in the main with this view, else how were it possible to educate an Helen Keller, and a somewhat extended list of blind deaf, some of whom by placing their hands on the piano are able to enjoy music.

We may, however, for the present forget these objections and divide the adventitious causes of impaired hearing into the three seemingly natural groups, namely :

1. External diseases and accidents of the ear.
2. Middle ear diseases, principally those due to infections from the tonsils, adenoids and the eruptive fevers.
3. Those remote influences that have their origin in the brain, heart, lungs, liver, kidneys, the digestive tract, and heredity.

The external ear is subject to a multitude of ailments, but

as many of these have only a remote or at least an indirect relation to hearing, we may dismiss them without discussion. In this class are found the exanthemata, perichondritis due to blows, benign and malignant growths, cutaneous affections of which eczema is typical, herpes and a somewhat extended list of similar troubles. In the Orient and Insular America one sees leprosy and noma attacking the auricle. We have all observed malformations of such a character as to seriously interfere with hearing.

Loud noises are sometimes the cause of impaired hearing. Fortunately, however, the noise must be of great force to do serious damage, and then only when the drum is already impaired. These noises are more apt to cause labyrinthine deafness if the patient continues his work. If men engaged in blasting find their hearing becoming less acute, it is the duty of the physician to warn them against continuing such work. The same thing, though in a lesser degree, happens to men ascending to great heights. In the latter class of cases condensation and rarefaction of the air takes place, but less suddenly than that caused by explosions. In both cases there may be dizziness, and sometimes hemorrhages into the tympanic cavity, as well as other disturbances. It may be that the aeroplane will give us a bird-man's disease.

Every general practitioner meets with cases where foreign bodies are lodged in the ear. These bodies are rarely in a position where they can do immediate harm, so the physician should not treat them as an emergency case requiring swift and speedy removal. I recently removed a grain of wheat that had been in the ear six months, the child, fearing to have it removed, had kept the accident to himself. The office is the place where, with a good light, not only can the body be removed, but the whole canal can be searched for any possible damage done. Sometimes these foreign bodies can safely be washed out, but generally speaking it is better to use a forcep for their removal.

In this connection permit me to speak of hardened wax in the ear, a condition that often interferes with hearing, for I want to emphasize the dangers of the large ear syringe too often indiscriminately used. If there is middle ear trouble, it is so easy to force water mixed with bacteria throughout the whole structure. If glycerine and soda be used for twenty-four hours to soften the wax, very little force will be found necessary to remove it.



Often it can be done with a large medicine dropper and a few warm cotton swabs on an applicator. If water is used, it should always be warm and sterile. Do not test the temperature of the water by putting your finger in it. Remember that cold water may cause trouble, especially if there is already a perforation of the drum and latent middle ear disease. It is usually better, for obvious reasons, to wipe out the suppurating ear with dry cotton swabs than to wash it out with water. As I have already hinted, you are apt to wash in more septic material than you wash out.

But I shall speak more of this when considering otitis media, and this brings us to the consideration of the second group of impaired hearing, namely, middle ear disease. In a general way we can say that middle ear troubles may be divided into three chapters, tubotympanic catarrh, acute suppurating otitis media, and chronic otitis media, with mastoiditis and other complications as sequelae. And what a story it is! There seems to be a general belief that is shared even by the profession that most deaf mutes are congenitally so. A bigger lie never was started than that, for the truth is that not all was done for these children that should have been done, and as a consequence they become mutes. Some years ago I examined the records of one of the state schools for deaf children covering a period of fifty-four years. I found that during that period there had been admitted 2,227 children. I also found that less than 34 per cent, or to be exact, 754 children, were born deaf. Just what caused practically complete loss of hearing in the remaining 1,743 cases can not be definitely stated, but that infected tonsils and adenoids causing a foul catarrh were the chief causes was self-evident. It was evident because generally speaking acute tubotympanic catarrh is the beginning of middle ear disease. If we reflect upon the anatomic fact that the eustachian tube in the child is short and often has a large lumen, we shall at once see that while it affords a limited amount of drainage, it is at the same time an easy road over which bacteria may quickly travel to find lodgement and warmth in the recesses of the middle ear.

With these conditions before us, it is not hard to see that the causes for middle ear infection are found largely in the throat, and if this be true, then our treatment should begin there before great damage is done. Adenoids, tonsils and everything that obstructs drainage should be removed. It would be interesting perhaps to elaborate on this feature, to discuss the role of these

obstructions in arresting the mental development of the child as well as ear infections, but time will not permit.

I will, however, here venture to call our attention to the need of better care of the throats of children suffering from the ordinary infectious diseases. Use antiseptic gargles freely and during and immediately after any acute infectious disease it is far better to examine the membrana tympana. Pain is not necessarily a symptom of pus in the middle ear, for as we have already seen the eustachian tube in children is short and wide enough to allow sufficient drainage to relieve pain until considerable damage is done. It does not take a scientist to know that if the outflow of fluid is prevented to a considerable degree and the ingress of air is checked in any cavity, that there can be but one result and that is putrefaction. The farmer knows how to drain his field and the plumber knows how to remove the pestilential tendency of the damp cellar. It would be about as rational to treat the damp cellar's door with a coat of whitewash for decomposition within as to fill the external canal of the ear with remedies, for infections in the middle ear. In the case of the cellar the door must be opened and air admitted, and this is equally true of an infected middle ear. The simple procedure of paracentesis often gives immediate and permanent relief. It seems hardly necessary to here condemn the use of poultices for earache, for they act by softening the tissues so the drum membrane can the more easily burst. We all must know that it leaves an irregular perforation that is too often permanent. A proper incision through the drum will often obviate these difficulties. When heat is required to relieve pain, it should be used dry, not moist.

But many of these cases have passed through the acute stage before we see them, and we then have a running ear, a chronic otitis media to deal with. Here I would again emphasize the danger in using an ear syringe to wash out the debris, for softening of the bone, if not actual necrosis, may have already begun, and we are perilously near the mastoid cells. I think only in exceptional cases should we attempt to wash out these ears. Dry them out with warm cotton swabs, thoroughly ventilate them with fresh air from a low pressure tank, and pack them with a sterile cotton drain. A considerable number of such cases will go on to operation no matter what method is used. It may be that some day we shall have a vaccine that will be of positive service in these cases, but at present it is only a hope. We might here take up



the interesting and important question of mastoiditis, but time will not permit me to more than mention it as one of the serious and often fatal results of middle ear infection.

For the purpose of studying the third group of causes for impaired hearing, namely, those causes or influences that have their origin in the vital centers, I would subdivide them into:

1. *The blood group*, of which anemia, hyperemia and leukemia are typical.

2. *The toxic group*, which includes lithemia, glycosuria and albuminuria, etc.

3. *The general group*, as presented in tuberculosis, syphilis, sclerosis, heredity and general fevers.

These lists might be greatly extended, but here they are only intended to be suggestive. You will see at once that the opinion of the general practitioner in this class of cases will be of supreme help. The trouble has been that physicians constantly burdened by apparently more responsible duties are prone to dismiss these patients with as little attention as possible. If a child, the parents are apt to be told that he will outgrow it, when the truth is that he will grow into the disease and not out of it. If an adult, it is thought useless to attempt treatment. The two chief conditions within the organism which may retard mental development as well as impair hearing are an impure blood supply to the nerve centers, and an overstimulation from conditions which may exist in any organ of the body. Therefore, before beginning treatment an analysis of the blood and urine should be made. Not infrequently the stomach contents should be included, and at times a Wassermann will be found necessary. To illustrate I will refer to two of my own cases that I have had recently under observation. I refer to them because they are usual and not unusual. Both were women in middle life. The first had a persistent eczema of the external ear, for which she had suffered many things from many physicians. An examination of the urine showed at once a pronounced case of glycosuria. When this was corrected by diet and proper treatment, the ear soon got better. Later a sumptuous Christmas dinner caused a recurrence of the trouble so severe that the external canal was almost choked by inflammatory exudate. Again proper regime gave almost immediate relief from these symptoms. The second case came frequently to the office for local treatment of the throat, a marked

symptom being dullness of hearing and pain back of the ear. It was almost impossible to convince her that the cause of her trouble was in the digestive tract and not a local disturbance until a skiagraph was taken, which showed a greatly dilated stomach and a marked ptosis of the transverse colon, producing causes that had resulted in a typical condition of auto-toxic infection.

In these lithemic throats, as in this case just mentioned, may be found as a pronounced symptom, swelling and congestion of the lymphoid tissues behind the posterior pillars of the fauces. The patient will complain of pain and dryness in attempting to swallow. Sometimes the uvula is stiff and edematous. A long continued disturbance of this kind may result in permanent impairment of hearing, subjective noises, and other disturbing symptoms. It is obvious that constitutional treatment and diet must go hand in hand with any local measures employed.

While it is the overfed patient that is most likely to suffer from lithemia, it is the underfed one that presents anemia of the labyrinth. This is one of the milder and more common affections of the ear, being a mere local expression of a constitutional condition which a blood count ought to help clear up. It is due to a general anemia clinically we know that hemorrhage occurring in any part of the body may produce a disturbance of hearing, dizziness and vertigo by depleting the system. Bromides and ergot in excessive doses will do the same thing, while on the other hand quinin will produce the same symptoms by producing an hyperemia.

Again, a violent hemorrhage at childbirth may be followed in the mother by ringing in the ears and impaired hearing due to anemia, while on the other hand an extravasation of blood into the labyrinth often follows any active hyperemia such as accompanies mumps, measles, variola, typhoid, etc. There are many other interesting conditions presented by ear symptoms, but this paper is only intended to be suggestive and not technical. I think if we were to study these ear symptoms as we have studied the appendix, the liver, or the kidneys, we will be forced to the conclusion that the field is well worth cultivating on the part of the general practitioner. The fact of the matter is that the field of medicine is being divided and subdivided until the all-around medical man is likely to lose sight of his responsibility in these ear cases.

It is not easy, I must confess, to help an adult with advanc-



ing deafness back to normal, but we can help the children. The time to cure an impaired ear is not years after the ailment has come on, but at the earliest recognition of any departure from normal hearing. When physicians as a whole recognize this feature of ear disease, the child will have a better chance of going through life without a handicap.

I can not close without emphasizing my firm conviction that adenoids and infected tonsils are the great enemies of perfect hearing. There are few children who suffer from impaired hearing that do not have this condition. There is no more pernicious statement in the English language, when applied to the ear, than that one statement of letting the child alone to outgrow the causes that we positively know will later menace his hearing. And even though the ear were not involved, it is a far more rational treatment for faulty respiration to remove all obstructions than to fill the stomach with drugs of doubtful efficacy. Indeed, it is not too much to hope that when the parents through the family doctor understand the causes that produce impaired hearing, thus making it possible to early remove these causes, the number of these unfortunates will be materially lessened. It has been one of the purposes of this paper to present some of these causes.

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**Radium.**—H. A. Kelly and C. F. Burnam, Baltimore (*Journal A. M. A.*, Aug. 22, 1914), report their experience with radium in the treatment of uterine hemorrhage and fibroid tumors. Elaborate tables are given of their cases, and they feel sure that radium offers a marvelous means both for the control and for the doing away of uterine hemorrhages in the classes of cases where they have used it, and is also perfectly suited for the cure and disappearance of fibroid tumors. When it fails we still have the operation to fall back on if needed. It is simpler in application than Roentgen ray and acts less on the ovaries. They insist that the fibroid itself should receive the major radiation in any case and claim that radium can bring about a complete amenorrhea with the absence of menopausal symptoms in half of the cases and with mild symptoms in all of them. They insist on the intra-uterine application in contradistinction to the vaginal or cervical, but think it quite possible that suitable abdominal radiation with radium or the Roentgen ray may add to the rapidity of the results. In their tables they give the amount of radium and the duration of the application, showing wide variation in both. The technic advised is filtration through glass, 0.5 mm. of platinum; 0.5 mm. of zinc foil and 0.3 mm. of rubber. This apparatus, suitably shaped, is carefully introduced directly into the uterine cavity. The time of duration of application seems to have ranged from five to twenty-four hours or a little more. This and the amount of radium used are all stated for each case in the tables.

## THE WASSERMANN REACTION—REPORT OF CASES\*

By JOSEPHINE M. DANFORTH, M. D., Cleveland.

Sanitätsrath Doctor Jessner, of Königsberg, Germany, in an article in *The Urologic and Cutaneous Review—Technical Supplement*, Vol. II, No. 1, January, 1914, speaks of the *Spirochaeta pallida*, the Wassermann reaction and salvarsan as "The Anti-syphilitic Triad."

These three great discoveries followed close one upon another and have opened the doors of knowledge and understanding to one of the greatest scourges of mankind, which, if not successfully checked, threatens in time to undermine the human race.

My paper deals with only one phase of the great triad, the Wassermann reaction. The technic used has been the original test. This is fast supplanting the Noguchi and other modifications, which have been adopted with the idea of simplifying the test.

The most important and most troublesome feature of the test is the antigen employed. It has been determined that the use of more than one antigen is always desirable, different antigens varying in sensitiveness. The cholesterinized antigens are the most sensitive and therefore should always be controlled with another antigen and considerable judgment used in interpreting results. For example, in two of my cases, in which a cholesterinized antigen and a syphilitic liver antigen were used, the cholesterinized extract showed a positive result and the syphilitic liver a negative reaction. In such cases the history should always be carefully considered. In the first case a positive report was not justified, while in the second case it was.

It is advisable when possible to use three antigens, a cholesterinized, an alcoholic and an acetone-insoluble. The alcoholic antigens prepared from normal organs are the least sensitive. If one is going to depend upon one antigen, I have found the beef heart acetone-insoluble very reliable, but it is possible to get an occasional negative result with it in positive cases, notably in those which have received antisyphilitic treatment and in syphilis of the nervous system, which is illustrated by one case of tabes

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\*Read before the Ohio State Medical Society.



The following report covers a series of 104 Wassermann tests on 88 patients, 56 of whom were men and 32 women. Results have been classified as follows:

Positive reactions in total number of cases examined	36 per cent
Positive reactions in positive cases, regardless of treatment .....	75 per cent
Positive reactions in suspicious cases.....	56 per cent
Negative reactions in suspicious cases.....	44 per cent
Negative reactions in negative cases.....	100 per cent

1. *Positive syphilitic history, with or without recognized initial lesion. Positive reactions.*

Cases classified under this heading cover a period of time since date of infection ranging from 30 years to seven weeks. One 30 years and another 20 years in duration have developed well-marked ataxic symptoms and will be reported under the heading of *tabes dorsalis*. Seven out of the nine cases were known to have had some kind of antisyphilitic treatment. Treatment in two cases was unknown, but undoubtedly it was antisyphilitic.

Cases I and II illustrate a duration of 12 and 15 years respectively. The first had limited treatment. The second had treatment covering a period of two years, begun as soon as the throat and skin symptoms appeared and again covering a period of several months before the test was made. Case I is a good illustration of the effect of the syphilitic virus upon the offspring, four lives being sacrificed before an apparently healthy child was born, with the possibility of some blight making its appearance in this child at some future date. The third and fourth cases illustrate the prompt action of salvarsan and neosalvarsan in relieving early clinical manifestations.

Case I. Man about 40 years of age, white, married. Twelve years ago had a chancre develop two weeks after exposure. Never had any sores on body, ulcers or eruption. No sore throat. Soon after primary lesion, hair began falling out and patient felt weak and debilitated. Still complains of feeling weak and looks anemic. His physician told him it was a light case and he took only one month's treatment. Seven years ago he married. Wife has never had any symptoms. Children: First, premature, seven months. Second, premature, eight months, born alive but soon died. Third child lived six weeks, had a large liver. Fourth, girl, now three years old. When a baby had sores on her legs. A year ago had convulsions and hemiplegia developed. Cannot walk. Still has convulsions. Fifth child, boy, one year old and apparently perfectly well. Wassermann reaction strongly positive to cholesterinized human heart, and beef heart acetone-insoluble antigen, and weakly positive to human heart alcoholic antigen.

Case II. Man about 60 years old, white married. Fifteen years ago had lesion behind corona which had every appearance of chancre, but patient denied all possibility of infection. In three weeks typical skin and throat symptoms appeared, leaving no doubt as to character of lesion. Mercurial treatment was begun at once and continued 18 months. The iodid of potash was given about eight months. No more symptoms developed until the spring of 1913, when copper colored spots appeared on face, scalp, back of hands and a few on body. The patient was put on iodid of potash again in November, 1913. The Wassermann reaction was strongly positive to cholesterinized beef antigen.

Case III. Man, 17 years, white, single. Seven weeks ago had two sores develop five days after exposure. One soon dis-



appeared, the other remained and is inflamed and indurated. A week ago had an injection of 606. Two days before injection had an enlarged gland in throat, and two weeks before had an eruption come out on chest, face and legs. The swelling of the gland has subsided and the rash about disappeared. Test strongly positive to syphilitic liver and cholesterinized guinea pig's heart.

Case IV. Man, 40 years, single. Time since infection, 10 weeks. In this case no primary sore was noticed. Sore throat developed six weeks after exposure and has been sore and ulcerated four weeks. Last three days of macular eruption all over body. Does not itch. Has been running a temperature, formerly up to  $104^{\circ}$ , now  $100^{\circ}$ . The test was strongly positive to beef heart acetone-insoluble antigen.

Two days after test 0.6 grams of neo-salvarsan was injected intravenously. Five days later blood was again taken for test and was still found to be strongly positive to the same antigen. Meanwhile the eruption had entirely disappeared and the throat was almost well.

2. *Positive syphilitic history, with or without recognized initial lesion, negative reaction.*

Three cases were tabulated under this heading. The first two, one of 17 years' standing, the other of 14, received the usual mercurial and iodid treatment. The first case had mucous patches in the mouth and typical skin eruption, no other symptoms have developed. The second case had a bad attack of iritis following the throat and skin symptoms. Neither case observed any primary lesion. The first was negative to beef heart acetone-insoluble antigen, and the second was negative to two antigens, beef-heart acetone-insoluble and human heart alcoholic.

The third case, a colored man, 36 years old, single. No history except that of a phagedenic chancre extending over a period of three years and at time of test in bad condition. The diagnosis was determined by microscopical section by Doctor J. H. Hewitt, Pathologist to City Hospital. Previous to test, character of local and internal medication unknown. Reaction negative to beef heart acetone-insoluble and human heart alcoholic antigens. Since the test, patient has been given intramuscular injections of mercury and two injections of neo-salvarsan. The lesion has shown marked improvement under the treatment.

The first two cases would indicate that mercurial and iodid treatment is efficacious in eradicating the spirochaetae, but such a

conclusion should not be reached until a provocative injection of salvarsan be given and the blood again tested, using a cholesterinized antigen which is more sensitive than the other antigens. The history and treatment of the third case is too indefinite to draw any conclusion. The case should at least be tested with a cholesterinized antigen.

3. *Negative syphilitic history, suspicious symptoms, positive reaction.*

Case I. Man, 30 years, white, married. History: Mitral regurgitation. Exhausted all the time. Has gonorrhea. Fifteen years ago had soft chancre and bubo. Nine or ten years ago had a sore throat which lasted a couple of months. Eight years ago had a venereal lesion which the doctor cauterized. Six years ago had some kind of a mixed infection. Does not know whether he ever had hard chancre. No general manifestation of syphilis. Test, weakly positive to beef heart acetone-insoluble antigen.

Case II. Man, 25, white, single. No history of initial lesion. Glands of neck enlarged, broken down on left side. Ulceration of hard palate extending to gums, posterior pharyngeal wall and vocal chords. Test strongly positive to beef heart acetone-insoluble antigen.

Case III. Man, 22, white, single. Denies any specific history. Symptoms indicate an inflammation of the spinal meninges and possible involvement of the anterior and lateral columns. History: Had glands in neck removed three years ago. Orchitis two years ago from strain. Until three months ago no symptoms of lesion of nervous system. First symptoms noticed, pricking sensation in feet. Later difficulty in walking, shuffling gait. Physical examination shows parasthesia of lower limbs, spastic gait, exaggerated patellar reflex, positive Babinski and tenderness of cervical spine. Wassermann test, weakly positive to beef heart acetone-insoluble antigen, strongly positive to cholesterinized beef heart antigen. Diagnosis, syphilitic pachymeningitis. Improved after an injection of 914.

Case IV. Woman, 36 years, white, married, has gonorrhea. Has been sick a great deal. No specific history. Husband had some disease, does not know of what nature. Negative reaction to syphilitic liver antigen, strongly positive to cholesterinized beef antigen. This is the case I referred to earlier in the paper as reporting positive.



Case V. Man, 30, white, married. This case illustrates the value of the Wassermann test as a means of differential diagnosis. Six years ago patient had some kind of a venereal sore cauterized by physician. Nature of medication not known. No suspicious symptoms of a specific nature until recently. Now has ulcer in nose. Married four years. No symptoms of specific disease in wife. Has decided tuberculous tendency. Wassermann reaction strongly positive to syphilitic liver and cholesterinized guinea pig heart antigen. Subsequent mercurial injections caused rapid improvement in ulcer and patient's general condition.

4. *Negative syphilitic history, suspicious symptoms, negative reaction.*

Case I. 36, white, married. Diagnosis, incipient paresis. No specific history obtained. Clinical symptoms: exaggerated knee jerk, left pupil fixed, delusions of grandeur. Test negative to three antigens; beef heart acetone-insoluble, alcoholic human heart, and cholesterinized human heart.

Case II. Woman, 54 years, white, married twice, now a widow. History: First husband was not a good man. Lived with him about one year. Second husband died a year ago. Lived with him 23 years. Patient never could see very well with left eye. Nineteen years ago paralysis of optic nerve came on suddenly. Upper lid closed four months. Still some ptosis. No specific history. Test negative to beef heart acetone-insoluble antigen, Sept. 3 and Sept. 8.

Case III. Man, 33, white, single, no specific history. Has ptosis of upper lids, irregular pupils. No ankle reflexes, apathy, delayed cerebation. Negative to beef heart acetone-insoluble antigen.

Case IV. Woman, 37 years, colored, married. History: Married 18 years. Four children, two living, two dead. No miscarriages. One child died with tuberculous meningitis. One suffered from marasmus and had convulsions. Both subject to pustules and sores. The two children living are also subject to eruptions. Patient had a bad sore in mouth five or six years ago. Since then breaking out on body and small boils on labia which do not mature. Has fine looking teeth, but has to take good care of them. Test negative to beef heart acetone-insoluble antigen.

5. *Negative syphilitic history, negative reaction.*

Thirty-three cases were tabulated. Some of the diagnoses

were as follows: Mental aberration, 1; iritis, 1; necrosis of bone, 2; non-union of fracture after ten weeks, 1; ulcers, 3; neuritis, 1; rheumatism and rheumatic arthritis, each 1; gonorrhea, 3; chronic sinus of spine, 1; diabetes, 1; pneumonia, 1. The last two conditions have been reported as giving sometimes a positive reaction.

#### REPORT OF CASES OF TABES DORSALIS

Number of cases, 4.

Case I. Contracted syphilis 30 years ago. Nature of therapy unknown. Now has edema of legs, ptosis of left eye. Liver enlarged, firm and nodular. Lost reflexes, Argyll-Robertson pupil, Romberg sign positive. Strongly positive to beef heart acetone-insoluble antigen.

Case II. Syphilis 20 years ago. Had breaking out on forehead, sore throat and mucous patches. Fourteen years ago ulceration of ala of nose. Healed under treatment in six months. No other ulcerations. Now has girdle pains, dizzy when walking with eyes closed and difficulty in walking down stairs. Numbness of legs. Reaction weakly positive to beef heart acetone-insoluble antigen.

Case III. Denies any luetic infection. Family history: Father had rheumatism and died with cancer at 62 years of age. Mother died from an accident. Has three brothers and two sisters living and well. Patient's history: Since a child left leg undeveloped, smaller than right and one-half inch shorter. Dates from a spasm when a year old. Seven years ago knee of same leg gave out and he had to wear a brace. Otherwise has always been a well man and able to work, until last October, when pain developed in both legs, arms and around waist, was able to walk until the first of the year, when the pain disappeared and walking became difficult. For two months has not been able to walk at all. Mind is perfectly clear, but talking difficult. April 6 was given 0.9 gram neo-salvarsan. Since then pain in legs has returned somewhat, coming on towards night. April 16, ten days after injection, test was negative to beef heart acetone-insoluble antigen and human heart alcoholic antigen. April 21, neo-salvarsan repeated. May 6, two weeks later, Wassermann positive to cholesterinized human heart antigen.

#### CONCLUSIONS

I feel on the whole that results obtained have been satisfactory. The practical value of the test lies in its ability to correctly



differentiate syphilitic from non-syphilitic conditions and to aid us in arriving at more definite conclusions with regard to the curability of syphilis.

The percentage of positive reactions in positive cases depends upon the stage of the disease and the amount and character of the medication. In secondary and tertiary stages from 90 to 100 per cent positive reactions have been reported. In primary syphilis the reaction is usually not found earlier than two weeks after infection. Cummer and Dexter report a case positive on the third day. In syphilis of the nervous system the percentage of positive reactions is not as high. When the serum is negative in such cases an examination of the spinal fluid is indicated.

Negative results in negative cases have been quite uniformly reported. That a few conditions other than syphilis may give the reaction has also been determined, notably scarlet fever in the acute stage and other diseases due to spirochaetae, as Vincent's angina and "Frambroesa tropica." Doctor W. C. Stoner, in an article entitled "The Clinical Value of the Wassermann Reaction," says different observers have found positive reactions also in tuberculosis, pneumonia, typhoid fever, malaria, early measles, malignancy, diabetes, pernicious anemia, Addison's disease, cases treated for rabies and following anesthesia. His opinion "based upon personal experience is that such reactions are due to faulty technic or to a coexisting latent syphilitic condition."

With regard to the curability of syphilis the test has developed some interesting facts. Cases which have had no clinical symptoms for years following mercurial treatment often give strongly positive reactions, especially with cholesterinized antigens. Negative reactions may become positive after a provocative injection of salvarsan, and when a negative reaction follows an injection of salvarsan or neo-salvarsan, it may again become positive in a few weeks or a few months, so that one must be very cautious with regard to declaring a case of syphilis cured. Cummer and Dexter have formulated the following rule which seems to me a practical one to follow, that is "to have a reaction done four to six weeks after the last dose of mercury. If negative, treatment is withheld and the reaction is repeated in one month, again after an interval of three months, and finally at the end of a year," and we might add the following from Doctor Stoner, "even then, until another 20 years have elapsed, we cannot be absolutely certain that the disease is absolutely cured

and permanently obliterated and that no late manifestations will occur."

I wish to express my appreciation of the courtesy of the visiting physicians to the City Hospital which has made this clinical study possible.

### Bibliography

1. Cummer and Dexter: "Ten Months' Experience with the Wassermann Reaction as a Clinical Sign of Syphilis." *The Ohio State Medical Journal*, 1911.

2. Cummer and Dexter: "The Importance of the Early Diagnosis of Syphilis." *The Journal of the American Medical Association*, October 5, Vol. LIX, pp. 1254-1257.

3. Willard C. Stoner: "The Clinical Value of the Wassermann Reaction." *The Cleveland Medical Journal*, April, 1911, Vol. X, p. 297.

4. Homer F. Smith: "The Practical Applications of the Wassermann Reaction." *The Cleveland Medical Journal*, May, 1910, Vol. IX, p. 324.

5. J. E. R. McDonagh, F. R. C. S., London, England: "The Biology of Syphilis." *The Urologic and Cutaneous Review*, January, 1914, Vol. XVIII, p. 1.

6. Sanitätsrath Doctor Jessner, Koenigsberg, Germany: "The Anti-syphilitic Triad." *The Urologic and Cutaneous Review*, Technical Supplement, January, 1914, Vol. II, p. 1.

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**Public Health Work as a Career.**—J. A. Ferrell, Washington, D. C. (*Journal A. M. A.*, Aug. 22, 1914), points out the advantages of public health work as a career for the young physician. He says this is the day of the efficient expert, and a public health officer is an efficiency engineer in the most important department of human life. For the young man, however, there are certain important questions to be answered. First, what are the immediate chances of employment, and in answer to this he says it may be stated with full assurance that there are already more paid positions for health officers than can be satisfactorily filled and the demand is all the time increasing. It comes from federal, state and city departments; from the schools and more recently from the rural districts. Twenty-one states now have medical-inspection laws, ten of which are mandatory, and a call is being made for whole-time medical health officers. With increased demand has come higher compensation, and he gives the figures for this. As in the field of education, a more enlightened public sentiment is removing the health officer from politics. To ask if health work will be permanent, is to ask will good health always be desired, and whether community spirit will grow. One thing, however, is certain: the field of public health work is no field for a poorly trained man. The public is going to employ more and more health officers and will insist on them being properly equipped. At present it is somewhat difficult to get the precise training required. The medical schools are not yet awakened to the necessity of special training in this regard, and until they do Ferrell recommends that promising young men from the high-grade schools should be selected to serve an apprenticeship or internship under practically trained health officers in actual service. There appears, he says, to be some danger that the public health work may to some extent escape the control of those most competent to direct it—the medical profession. Its leadership belongs to the trained medical man, and readjustment will have to take place, and he believes that it will be accomplished even sooner than some of us now realize.



## A CONSIDERATION OF MORTON'S NEURALGIA OR METATARSALGIA

By JOHN B. TYRRELL, M. D., Chicago, Ill.

The increasing prevalence of weak feet and concomitant arch troubles among civilized people forces us to a realization of the great importance of this subject to the medical profession. No subject of such importance has heretofore been overlooked by physicians as this one, and why this is so is rather hard to understand. The medical profession has been alert to the importance of the eye as a factor in human efficiency, and has repeatedly correlated the cause and effect of many neurotic conditions as bearing upon ordinary eye strain. In no less degree has the profession been directly responsible for most of the great advances in sanitary measures as related to public health and to commerce. It is certainly of prime importance to human economy to understand and treat the foot for there is no other organ of the human body, outside of one or two, which are absolutely indispensable to life, that contributes so much to human efficiency as does the foot.

Outside of general weak and broken-down arches, which is legion, no foot affliction has become so prominent in recent years as Morton's neuralgia. In fact, it has become so prevalent that physicians are forced to accept it as they were forced to accept and study appendicitis following the pioneer work of Fitz.

Pain and discomfort referred to the metatarsophalangeal articulations of the foot are symptoms that may be traced to abnormal conditions of the anterior metatarsal arch. Normally the distal extremities of the metatarsal bones, although each bears its share of weight when pressure is put upon the foot in standing or walking, collectively form an arch when the foot is at rest, the second and third bones being on a somewhat higher plane than the others. In other words, there should be a certain resiliency of this part of the foot lessening liability to injurious pressure and strain. In many instances this is lost and we find on examining the sole of the foot a persistent convexity in place of the normal depression indicating the arch. It may be noted in this connection that planterflexion of the toes raises the heads of the adjoining metatarsal bones and increases the metatarsal arch. On the other hand, dorsiflexion of the toes lowers the arch, and as this attitude of persistent dorsiflexion of the first phalanges and consequent limitation of the plantarflexion is one

of the common effects of shoe wearing today, one recognizes the shoe as the most constant cause of weakness and of depression of the anterior metatarsal arch.

Another type of weak arch is that in which there is, in consequence of weakness or flabbiness of tissue, an abnormal lateral expansion of the fore foot—a broad foot. Again, there may be apparently a local weakness of the muscles or ligaments of one of the component bones of the arch. This would allow it to assume an abnormal relation to its fellows forming the arch.

Attention was first called to pain in this region of the foot by Doctor T. G. Morton, of Philadelphia, in 1876, under the title of "painful affections of the fourth metatarsophalangeal articulation," and as far as symptoms of this type of what may be called metatarsalgia is concerned, his description is classical.

Typical cases are characterized by sudden cramp-like pain beneath the ball or forefoot, in the neighborhood of the fourth toe. It may begin as a burning sensation under the toe or as a sensation of discomfort that gradually increases until it becomes unbearable. From the point of greatest discomfort the pain often radiates to the end of the toe or up the dorsum of the foot to the leg. Except in extreme cases, the pain is never felt except when the shoe is worn, and it may be relieved usually by removing the shoe and grasping and rubbing the foot. This need is so urgent that the removal of the shoe is one of the most distinctive signs of the affection. These cramp-like attacks may occur only at infrequent intervals, as, for example, when a certain shoe is worn, or they may occur so frequently as practicably to disable the patient. After an attack of cramp the part may be sensitive for a time, and swelling even may appear, if it has been severe and prolonged. This is, however, rather unusual. The affection is relatively more common among women than among men, and among well-to-do rather than the poorer classes. It is not infrequently found in several members of the same family, and it may be an inherited peculiarity. It is often bilateral, the second foot becoming affected usually after a considerable interval. It is usually chronic in character and not infrequently the patients are of a nervous or possible neurasthenic type.

As has been stated, pain, although far more common at the fourth articulation, is by no means confined to this point. In some instances the patient is unable to localize the pain accurately, and in others it is referred to the two or three adjoining toes—



second, third and fourth. In certain cases the greatest complaint is of sensitiveness of the metatarso-phalangeal joints to pressure, either direct or lateral. This complaint is more common when the arch is depressed and fixed in this attitude corresponding to the rigid weak foot. In other instances a painful callus beneath the second or third metatarsal head is the source of discomfort.

It should be stated that typical cases of Morton's neuralgia may be present, although the foot is apparently normal in appearance.

*Etiology*—As has been stated, the attacks of pain, although favored by "hot pavements" by "the sticking of a damp sock to the foot," by thin soles; by sudden and unguarded movements, and the like, are always induced by the shoe, and it may be assumed that the pressure of the shoe upon a weakened and sensitive part induces the cramp. The influence of the shoe, as Morton has suggested (1) may be explained as follows: Normally, lateral pressure on the hand or foot compresses it and increases the depth of the arch, as a tight glove does the hand. If, however, this increase of the arch is prevented, the adjoining bones cannot escape lateral pressure, a pressure that then becomes extremely painful, as one may demonstrate upon one's self by squeezing the hand suddenly while the metacarpal bones are fixed in the same plane; or if one finger of the hand be dorsiflexed so that the metacarpophalangeal joint is forced below the level of its fellows, pain on lateral pressure is always referred to this point. The same maneuver causes pain in the foot of the corresponding articulation. It is evident also that in the foot an articulation that is depressed habitually will be constantly subjected to greater weight, or direct pressure as well, when it is in use.

Of all the causes of weakness and deformity of the anterior part of the foot the shoe is by far the most important. The lateral compression of the narrow and ill-shaped sole induces distortion of the toes and atrophy of the muscles that have lost their function. Thus, the fore foot, deprived of its accessory supports, is subjected to abnormal pressure. The depression of the anterior metatarsal arch is induced by the persistent dorsiflexion of the toes—which is the attitude of shoe wearing people, an attitude favored by direct compression by the rocker shape of the ordinary shoe, and by slight depression of the sole beneath its center.

In the depressed arch, that metatarso-phalangeal joint that is lowest is subjected to abnormal pressure and injury and it is liable to lateral compressions as well, the latter being the direct cause of the characteristic cramp. The fourth articulation is most liable to injury, because it is practically the outer support of the arch, as the fifth joint is almost always on a higher plane or in an attitude that favors injurious pressure.

This may be readily illustrated by the schoolboy trick of suddenly compressing the hand when the fifth metacarpal bone is above the level of the fourth.

In many instances of Morton's cramps there seems to be simply a laxity of tissues that allows a sudden displacement downward of the fourth articulation or elevation of the fifth, a movement as of something slipping, which is followed by a characteristic pain. This displacement may be induced by a misstep or by overexertion, and not infrequently the first appearance of the affection dates from a sprain or twist of the foot, or is induced by extreme dorsiflexion of the toes. It may be stated also that extreme dorsiflexion may cause subluxation of one of the joints which in itself may be the cause of the peculiar pain, certainly if in the same movement a compression is applied. There are, of course, other predisposing or exciting causes of this pain than the simple local causes that have been mentioned; for example, weakness of the longitudinal arch, the hollow foot, in which the planter fascia is contracted; local or constitutional affections that may make the foot abnormally sensitive.

*Pathology*—It would appear, as has been stated, that pressure would be the ordinary cause of the symptoms, which, as the attacks occur, makes the articulations in general sensitive. The more intense pain is due apparently to trauma on the digital nerve, and in many cases a local neuritis may be present. Other changes in and about the joint are usually those secondary to the abnormal position of the part.

*Treatment*—The treatment of the affection should be aimed at the removal of the causes of the discomfort and of restoring the normal condition of the weakened part. The first essential, therefore, is to provide the patient with the proper shoe. This must correspond in outline to the normal undistorted foot. The sole should be substantial and the shank should be arched to give proper support to the sole. A laced shoe that can be drawn tight about the arch usually adds to the comfort of the patient.



In fact, the object of this mechanical treatment is to support this anterior arch just as a planter arch is maintained. For this reason, provide the patient with a metallic arch insole, of which the longitudinal and anterior or transverse arches are pronounced. This plate, as shown in the diagram (Figs. 1 and 2), extends from the heel to and slightly beyond the second, third and fourth metatarsophalangeal joints.



Fig. 1

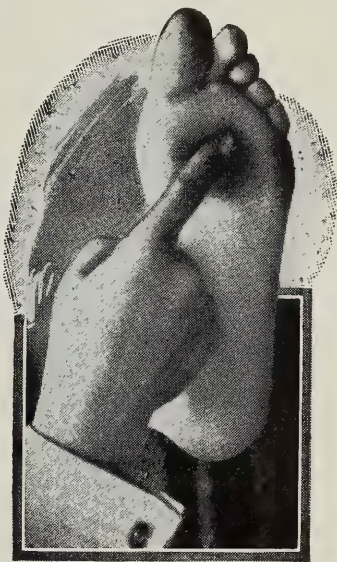


Fig. 2

Doctor Wm. M. Scholl, of Chicago, has devised and patented an anterior metatarsal support that is an excellent one. (See Fig. 1.) It is made with an elevation at "X" and has the superior advantage of being adjustable to the individual case, thereby obviating the necessity of plaster cast mold, except in unusual cases, and can be fitted in a few minutes' time.

In all cases patient should endeavor in the after-treatment to regain the proper planterflexion of the toes by manipulation and by exercise, and by pressing the toes firmly against the sole of the shoe to assist as far as possible the weakened arch in the performance of its functions.

Operative treatment advocated by some is not necessary and is uncalled for in any instance. Correction of weak arches, both transverse and longitudinal, by properly fitted supports is the logical and sane method of handling these cases, and, as evidence of this, records of cases treated in this manner are sufficient. A well-known ball player in his prime as a big league first baseman and manager was almost forced to quit playing a few years on

account of Morton's cramp and neuralgia. Mechanical correction was resorted to and completely relieved him of the affection and saved him to the game after he had been advised to have the toe amputated. Mechanical correction, in the form of a well fitted arch, completely and absolutely relieves by restraining the deformity and restoring function. A perfectly fitted longitudinal arch further aids this by adducing the foot, rotating it from a pronated posture, which is the postural deformity of a weak or falling arch, to a position approaching supination. Function is thus restored to the muscles and ligaments of the planter region, especially those of the fore foot.

1. *Medical Record*, 1898, LIV, 189.

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**Foods and Nutrition.**—The more recent views as regards the parts played by the different food substances in nutrition are reviewed by L. B. Mendel, New Haven, Conn. (*Journal A. M. A.*, Sept. 3, 1914). An elementary understanding of the disposal of carbohydrates and fats was earliest acquired as they were the first to have their chemical constitution unraveled. It was not until the work of Carl Voit that the nitrogenous equilibrium of the animal body became understood. To show the changes within the last thirty years in our views of nitrogenous metabolism Mendel quotes from Michael Foster, who wrote in 1891, that the greater part of the protein material of the food enters the blood as peptone and in some other form of protein material, and as such was conveyed to the tissues. The latest dictum is quite different. Proteins are now considered to be disintegrated in the digestive tract into the comparatively simple amino-acids which, so far as the nitrogenous transformations are concerned, are now the center of interest. Most, if not all of the amino-acids are the essentials to satisfy the nutritive needs of the body and some of them are absolutely indispensable for its maintenance and provided they are rendered free and available by the digestive processes, it matters little to the animal body whence they are obtained. Meat, egg proteins and cereal proteins all serve in the same sense and according as they are present or lacking in foods, the body is served. They also serve as culture mediums for bacteria which may yield products of toxic potency. The compounds known under the name of ptomains are doubtless, Mendel says, nothing else than the fragments of amino-acids that have fallen sacrifice to bacteria before they could be absorbed intact into the bloodstream. The knowledge of this fact may help us to avert the serious consequences which may result. The discovery of the amino-acid structure of the proteins also throws light on the phenomena of immunity, the precipitins and anaphylaxis and also indicates a possibility of explanation of the development of special enzymes which are recently being pointed out and utilized in diagnosis, etc. Mendel also takes up the old theories of urea, quoting from Foster and showing that today there are many rifts in the veil of mystery surrounding the chemical transformations of food substances in the body that puzzled him. The explanation of certain virtues attributed to certain fats is also, Mendel thinks, nearer at hand and he points out some of the problems which are yet to be solved and their bearings on malnutrition and disease. In conclusion, he says, that physiology must use not only the sciences of physics and chemistry but its own fruitful experimentation methods on animals and men. None of these procedures can be dispensed with and the medical profession must insist on conserving for the physiologic sciences the opportunity to continue its studies untrammelled by those who fail to appreciate its motives.



# The Cleveland Medical Journal

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## EDITORIAL

### The Albert Fairchild Holden Foundation

One of the largest individual gifts ever received by Western Reserve University, and one of the notable gifts to Medical Science in the United States, was the recently announced bequest of Liberty E. Holden, Cleveland, to the Medical School, in memory of his oldest son, Albert Fairchild Holden.

The value of the Holden estate has been estimated to be between \$5,000,000 and \$6,000,000 and this bequest represents one-sixth of the estate, less \$50,000 for a personal bequest, being that share that would have gone to Mr. Holden's son had he survived his father. The income from the fund will revert to the principal until such time as the University officials are given full control, since it is optional with the trustees of the estate to turn over the fund before the expiration of the twenty-five-year period that the estate is to be held in trust.

Personal experience with a disease has led more than one man to devote a large sum to the search for its control or cure or going even further and recognizing that the application of laboratory results to medicine has brought progress. Both Mr. Holden and the son in whose memory the foundation is established were especially interested in the problems of medical science today and this interest can best be seen from the language of the instrument making the gift:

"I, Liberty E. Holden, donor of the aforementioned trust, direct that the portion of the principal of the trust estate which would have been distributed to my son, Albert Fairchild Holden, be delivered to the trustees of the Western Reserve University.

"It is my desire that this fund be known as the Albert Fairchild Holden Foundation, and that the income derived therefrom be expended through the Medical School of said university in research work towards ascertaining the cause, cure and treatment of fevers, apoplexy, epilepsy, paralysis, cancer and other diseases.

"It is my desire that the trustees of the said university, through the medical college, establish a series of popular lectures on the diseases studied under this foundation and on the laws of hygiene, these lectures to be delivered sometime during every year to the public, giving to the trustees of the said university authority to arrange for and fix all details for such lectures.

"I further give to the trustees of the said university authority to use the income arising from the foundation for the purchase of lands, erection of buildings or purchase of apparatus or supplies, if in their judgment, the interests of the school can be best served by such use of the income."

The opportunity to satisfy one's longing for research is a noble privilege, one that Mr. Holden has made his own; and by his generosity he has established the Medical Department of Western



Reserve University to such additional extent that it will become the great central medical center of the United States.

Every citizen of Cleveland can very appropriately express appreciation for this gift to the University since directly or indirectly he may be the recipient of this provision for increased human welfare in the times to come.

R. F. S.

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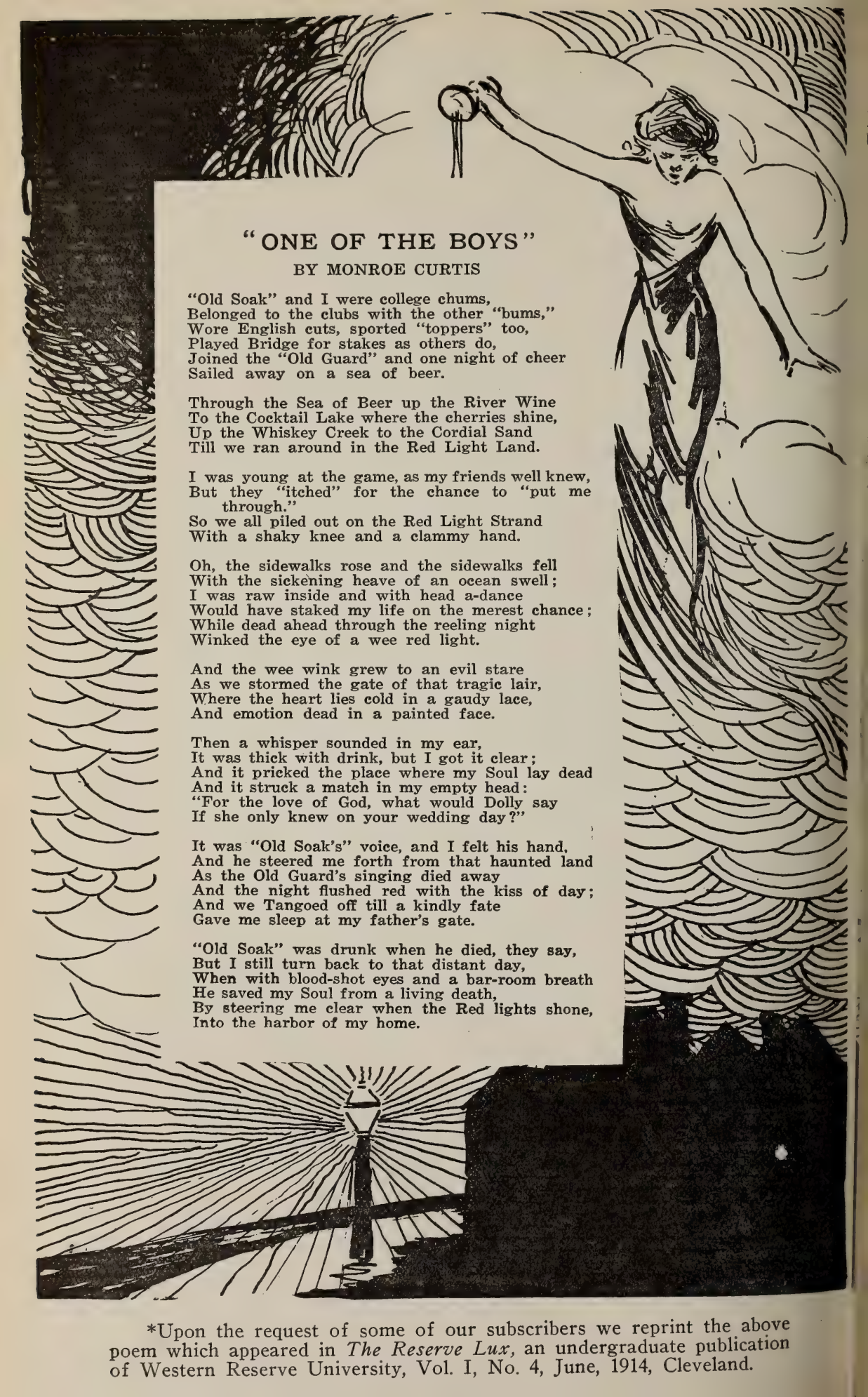
### Strychnia and Football

The beginning of the football season reminds us once more of that spirit, very noticeable in some colleges, which would win games at any cost. That this spirit is opposed to the ideals of true sportsmanship is well known, that it may go so far as to permit or at least not oppose the indiscriminate drugging of players, in the hope that their game may be improved, is probably not generally known.

There are undoubted instances where, by order of the coach, every member of a team has been given 1-60 gr. of strychnia, by mouth, during the interval between the halves of a game. In another instance, absolutely authentic, a young man with more knowledge of pharmacology, but not a doctor or medical student, took the matter into his own hands. He had injured his knee earlier in the season and was taken along with the team to be used as substitute in an emergency. He carried with him onto the field 1-15 gr. of strychnia, to be taken by mouth if he were called into the game.

Whether or not 1-60 gr. of strychnia would promptly increase the reflex excitability of the central nervous system of each player sufficiently to make him a better football player, this practice is most pernicious. The spirit of "play to win" would win one game by the use of a measure which might be permanently injurious to one or more of its own players. The example set in the self-administration of drugs, as shown by the instance of the player mentioned above, is certainly a definite menace. Assuming that the drug as administered has a helpful action in acquiring football victories, it would seem that a team or player which has not enough "pep" of its own to play throughout a game had better give up the "sport" before it resorts to the use of drugs.

L. A. P.



## "ONE OF THE BOYS"

BY MONROE CURTIS

"Old Soak" and I were college chums,  
Belonged to the clubs with the other "bums,"  
Wore English cuts, sported "toppers" too,  
Played Bridge for stakes as others do,  
Joined the "Old Guard" and one night of cheer  
Sailed away on a sea of beer.

Through the Sea of Beer up the River Wine  
To the Cocktail Lake where the cherries shine,  
Up the Whiskey Creek to the Cordial Sand  
Till we ran around in the Red Light Land.

I was young at the game, as my friends well knew,  
But they "itched" for the chance to "put me  
through."

So we all piled out on the Red Light Strand  
With a shaky knee and a clammy hand.

Oh, the sidewalks rose and the sidewalks fell  
With the sickening heave of an ocean swell;  
I was raw inside and with head a-dance  
Would have staked my life on the merest chance;  
While dead ahead through the reeling night  
Winked the eye of a wee red light.

And the wee wink grew to an evil stare  
As we stormed the gate of that tragic lair,  
Where the heart lies cold in a gaudy lace,  
And emotion dead in a painted face.

Then a whisper sounded in my ear,  
It was thick with drink, but I got it clear;  
And it pricked the place where my Soul lay dead  
And it struck a match in my empty head:  
"For the love of God, what would Dolly say  
If she only knew on your wedding day?"

It was "Old Soak's" voice, and I felt his hand,  
And he steered me forth from that haunted land  
As the Old Guard's singing died away  
And the night flushed red with the kiss of day;  
And we Tangoed off till a kindly fate  
Gave me sleep at my father's gate.

"Old Soak" was drunk when he died, they say,  
But I still turn back to that distant day,  
When with blood-shot eyes and a bar-room breath  
He saved my Soul from a living death,  
By steering me clear when the Red lights shone,  
Into the harbor of my home.

\*Upon the request of some of our subscribers we reprint the above poem which appeared in *The Reserve Lux*, an undergraduate publication of Western Reserve University, Vol. I, No. 4, June, 1914, Cleveland.



## DEPARTMENT OF THERAPEUTICS

Conducted by J. B. McGEE, M. D., Cleveland.

**Acute Poliomyelitis:** Francis R. Fraser, in the July number of the *American Journal of Medical Sciences*, presents clinical observations on nine cases of acute epidemic poliomyelitis. For the purpose of treatment, acute poliomyelitis may be divided into three stages: (a) the acute stage of fever and general symptoms, including the period of onset, and spread of paralysis; (b) the stage of recovery of muscle power; (c) the stage where recovery in muscle power is complete as it is going to be, and the treatment as applied to the residual condition of deformities, flail joints, et cetera. (a) Apart from the suggestive work of Netter, in attempting to control the acute stage by subdural injections of serum from recovered cases no specific treatment has as yet been discovered that will check the process when it has commenced. When urotropin (Hexamethylenamin) is administered by the mouth, it may be detected in small quantities in the spinal fluid, and hence it was hoped that it might check the processes in the central nervous system. No decision as to the efficiency of urotropin can be reached without the statistics of a large number of cases, or by means of some precise method of estimating results. If the pain is not relieved by posture, hot applications, aspirin or opium preparations may be necessary. The general treatment during this stage is similar to that of any acute infection. In the severe and possibly fatal cases with the respiratory involvement, diffusible stimulants were administered, and when the dyspnoea became marked, oxygen was administered without any lasting benefit. In spite of careful treatment, cases with impairment of the muscles of respiration, or the upper respiratory passages, may develop an inflammatory condition of the lungs, that results in a fatal termination, without further spread of paralysis. (b) The treatment during the secondary stage of recovery and return of muscle power must be based on the pathology of the condition, as far as that can be ascertained. The acute inflammatory action is at an end, the edema is probably disappearing, the cells that will not recover are being absorbed and those that are less severely damaged are perhaps slowly recovering. As soon as the acute process has subsided, massage must be commenced. The active exercises must depend upon the age of the child, and are most successful in the very young patients if regarded as play. The muscles of limbs and trunks can be treated effectively by massage and exercises, but those of the face, pharynx, tongue, et cetera, can only with difficulty be reached by such methods. The muscles of the face are amenable to electric treatment, and though it is difficult to draw conclusions as to the relative efficiency of treatment, cases treated electrically do not appear to recover more rapidly than those that are let alone. The treatment must be directed along lines that follow the indications of the pathology of the disease and that are most likely to prevent crippling and deformities.

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**Points in Treatment:** Beverly Robinson, in the July number of *Merck's Archives*, considers the value of ordinary and rare cases to the practitioner and also points of treatment. He believes that there is an over-valuation of rare cases and the newer knowledge. Again, we know that time and continued observation alone make clear the diagnosis in many instances. Meanwhile our treatment is at best uncertain and may be changeable. Are these rare evidences of disease of much practical value to the practitioner? To the teacher perhaps they are, because he can talk to his students in a learned way, and make them feel for the while that it will help them much in actual practice to be familiar with the oddities of disease. Alongside the rare cases are the old chronics for whom good nursing and food is about the best that we can do. As to cure, even the most enthusiastic, if he be sane, cannot believe it. The acute diseases, if not interfered with foolishly and with

new-fangled ideas, have, as a rule, a tendency to get well. Outside the hospital practice, rare cases are only seen at long intervals. If the case is of a certain type and kind, neither he nor anyone else can cure; relief of symptoms is the best one can expect of the physician's role. How true it is today that this aspect of the physician's role is minimized as to its importance. He makes the assertion that many old, tried, simple remedies are still the best, and for two reasons: (1) They relieve symptoms, when feasible to do so; (2) they cause no injurious, not to say fatal, results. The great error, it seems to him, in medicine in our day is to magnify the importance of pathological conditions, and then become sceptical, because we know, or at least we think we do, we cannot cure them with drugs, or any known treatment. The other equally great error is to minimize the value of relief of symptoms. To do this without harm is, to his mind, almost primary in the great number of ordinary cases, and it is because modern medicine ignores or makes very light of it that the modern quack in his many forms flourishes unceasingly, and does untold damage to the health and lives of very many.

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**Cardiac Headache:** In the *New York Medical Journal* for August 1, Louis Kolipinski treats of cardiac headache. The different features of chronic headache, the obscurity of their origin, their vague and different causes, their obstinacy in recurring, their perennial duration, their baffling and discouraging treatments all combine to make them a field for further labor. Chronic headache is the most marked and persistent of the symptoms of weakness of the left ventricle, of the heart, and the causes of this failing adequacy are the ultimate causes of chronic headache. In the grave stage of heart disease, headache is not felt; in the obscure early stage, it is both important and significant. The lifelong duration of chronic headache depends on the lifelong weakness of the heart. Cardiac headache is a headache with fatigue as its chief exciting cause; the weak heart, and weak muscular system when exercised tire out. There are feelings of lassitude, weariness and exhaustion. The subject retires to rest and awakens in the morning or shortly after midnight with an attack of headache, occipital, nervous, nodular, or a migraine with one, two or three phases of a paroxysm, disturbed vision, or vomiting, migraine begins after midnight or in the morning, or awakening from sleep, after the exciting cause of depression has acted sufficiently long the day before. The prime indication in the treatment of a headache or its analogue a facial neuralgia from a weak or weakened heart, is to strengthen, or support if possible to restore it to normal. This can alone be done where the many acts in life which overtax this heart and weaken it still more are persistently and intelligently avoided. The weakened heart of chronic nicotin poisoning is a counterpart of organic myocardial weakness, and it is impossible to distinguish one morbid state from the other until the tobacco poisoning is eliminated. Rest of the body must be practiced as a daily system, medicinal treatment is essential to cure a chronic headache. There are two remedies of similar action which will accomplish this. Digitalis is the first. It should be given in a single dose, repeated in one or two days, and continued for months and years. The powder of the leaf, its tincture, fluid extract or infusion may be prescribed. He prefers, however, digitalic acid, of which a single daily dose of one-thirty-second or one-sixteenth of a grain of it or of its sodium salt may be given for an indefinite time. Rest and digitalis cure cardiac headache. Now and again digitalis fails or must be given with sodium iodid to regulate the pulmonic circulation. Strophanthus in a few instances replaces digitalis. Sometimes digitalis must be suspended, and strophanthus given instead until the heart again becomes susceptible to digitalis. The special treatment of an attack of cardiac headache is of secondary importance, as such attacks of cardiac headache cease altogether or become mild and endurable under the treatment described.



However, an efficient remedy for a severe paroxysm will be found in two grains of caffein citrate in a teaspoonful of aromatic elixir every fifteen or thirty minutes till relief is felt.

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**Infant Feeding:** W. D. Hoskins, in the July number of the *Indianapolis Medical Journal*, considers the present tendencies in infant feeding. There is a distinct tendency to spend less time teaching intricate formulas for the treatment and feeding of cases in general, and to spend more time teaching students and physicians what specific element in the food is causing the trouble in a given case. For example, to be able to differentiate an overfed baby from an underfed baby; a fat indigestion from a proteid one; a food-intoxication from a bacterial infection, and fundamental as this may seem, it is by no means always an easy matter. Jacobi, years ago, advocated the use of cane sugar in preference to milk sugar in modifying cow's milk. The use of maltose was probably delayed by the fact that until recently it was only available in the proprietary foods, and is probably the largest single element in their success. It is now on the market as a dextri-maltose, and can be bought by the pound at a reasonable price. The condition in which dextri-maltose is particularly indicated is in acute attacks of vomiting, diarrhea and fever. It seems that recovery is more rapid and recurrence less likely to take place if dextri-maltose is substituted for milk sugar, or cane sugar, when these have been used, and the subsequent gain in weight is more rapid. He summarizes as follows: There is a growing appreciation of the supreme value of mother's milk. A large percent of difficult feeding cases are due to premature, abrupt, or ill-advised weaning. There is a growing tendency to simplify methods of modifying cow's milk. To feed lower fat percentages. For example, whole milk instead of top milk, can be used as the basis with equally good results in many normal cases, and with better results in most difficult cases. There is a corresponding tendency to feed a higher per cent of protein. The percentage method remains the best method of determining relative proportions of food. There is a tendency to make the feeding interval from three to four hours, instead of between two and three.

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**Salvarsan:** An editorial in the August number of the *Therapeutic Gazette* treats of the untoward effects of salvarsan and their treatment. Notwithstanding the facts that its best friends have long recognized that salvarsan is a complex substance, possessed of very great potentialities, and on the other hand that it has been given in thousands of cases, by persons who have had no opportunity to become skillful in its administration, the number of instances in which serious after-effects have developed have been surprisingly small. There are a number of points in connection with the effects of salvarsan which still require careful study. One of these can be eliminated only with the passing of years, namely, as to the permanency of the cure induced by the drug. Another point is the development of cerebral symptoms. It seems to be a commonly accepted theory at present that these symptoms partake of the nature of a Herxheimer reaction, and are due to the setting free of endotoxins by reason of the destruction of spirochaetae under the influence of salvarsan. Ehrlich also expresses the belief that in those patients in whom evil symptoms develop sometime after a dose of salvarsan is given, these symptoms are probably dependent upon the production in the body of an oxidation product—paramino-phenylarsenoxid. This product seems to develop in the body in those persons to whom an overdose is given or in whom kidney disease exists, whereby elimination is delayed. The most important part of Ehrlich's letter deals with the free use of adrenalin for the purpose of combating the symptoms which arise in the course of salvarsan accidents. In those cases in which, immediately after the use of the drug, the face becomes cyanotic and dysnoea is present, prompt

relief seems to follow the hypodermic injection of this internal secretion. He quotes Milian, of Paris, as having found such a use of adrenalin valuable for the purpose of overcoming the diarrhoea and suppression of urine sometimes met with. Other clinicians have used adrenalin in this manner with excellent results and these facts lead Ehrlich to believe that by vigorous treatment this scourge of salvarsan therapy may be put aside in a very large percentage of cases. This novel use of adrenalin is of great importance to remember and of extraordinary interest. In cases of cerebral syphilis, Ehrlich points out that we must not attack the disease with a bludgeon, that is, by giving the drug in large doses, but must gradually steal in, and get rid of the parasites in this manner. Attention is called to Wechselbaum's statement that it is dangerous to use salvarsan after freely employing mercury. Wechselbaum's experience is so enormous that any statement by him should be accepted as of great importance, but it is interesting to note that in cases of cerebral syphilis Ehrlich believes that a thorough course of mercury should precede the salvarsan treatment. Ehrlich thereby taking a point of view apparently opposed to that of Wechselbaum.

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**Bacillus Coli:** W. Morgan Hartshorn, in the *Medical Record* for August 15, discusses the bacillus coli infections in infancy and early life. As to the presence of this and allied organisms in the severe forms of dysentery found in infants and young children, he quotes Zinsser that, whereas the *Bacillus Coli* may aggravate morbid processes by the formation of gas in an excessive carbohydrate diet, they do not of themselves take part in actual putrefaction processes. In most intestinal diseases they actually play but a secondary part. In conclusion, he emphasizes these observations: (1) In children, the *Bacillus Coli* may invade the nervous system, causing a meningitis, indeterminable clinically from other forms. (2) It has been found in pure culture in diseases of the respiratory tract. (3) It may produce a septicaemia, as is found in Winckle's disease and other reported conditions. (4) It has been found in acute catarrhal conjunctivitis, in children. (5) It doubtless acts with other organisms of its group in diseases of the intestinal tract. (6) In the genitourinary tract the *Bacillus Coli* may be the cause of enuresis, cystitis, pyelitis and pyelonephritis, these conditions accounting for many of the previously unexplained high temperatures with severe constitutional symptoms. (7) As the course of a pyelitis is frequently protracted, and as there are often exacerbations of symptoms after apparent cure, the treatment must be persistent and should be continued until the urinary findings are normal. (8) The most satisfactory treatment appears to be in the use of alkalies or in the guarded use of hexamethylenamin in increasing doses. (9) The vaccine treatment of pyelitis should be considered especially in obstinate cases and when other methods are not successful.

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**Cactus:** Finley Ellingwood, in the August number of the *American Journal of Clinical Medicine*, asserts that cactus grandiflorus has probably been the object of more diverse opinions during its investigation than any other remedy of the vegetable materia medica. He states that he must be forgiven, if after thirty years' constant use he has formed conclusions as to its action, that differ in many respects from those advanced by other writers. The most conspicuous influence of this remedy upon the heart is its nutritional influence, and it certainly increases the musculomotor energy of the heart. Cactus, he believes, is the heart tonic par excellence, in that it produces increase of action and restoration of nerve function, from actually increased nervetone, in this way inducing an improved nutrition of the entire nervous and muscular structures of the heart. The indications for its use he specifies as: functional disturbances of the heart and weakness of the heart associated with feeble, irregular pulse, some dyspnoea, and a sensation of weight or oppression



in the chest, all of which conditions depend upon atonicity or enervation. So marked is its influence in strengthening the action of the heart, and in improving the nutrition of the brain, thus improving the circulation, that it can be prescribed with great benefit in neurasthenia. Whenever in addition to nerve irritation there should be an apparent exaltation of nerve force, a temporary excess of strength in the cardiac action, or increasing arterial tension, cactus is contraindicated. In pneumonia he advises its use instead of digitalis, as equally efficient and far safer. It is also of value in the various nervous manifestations incident to the menopause. As to dosage, he has never seen toxic effects follow the administration of this remedy when properly indicated. While as high as 30 drops of a strong tincture has been recommended, he has never given above five, but two or three drops every two hours is a better method of prescribing than six or eight drops three times a day. In children, 10 to 30 drops in a four-ounce mixture, a teaspoonful dose is proper dosage.

**Scarlet Red:** A. Ravogli, in the *Journal A. M. A.* for August 1, presents a few practical points on the treatment of leg ulcers and states that some time ago every leg ulcer was dressed with scarlet red salve or toluylazo-beta-naphthol. Von Schmieden and Hayward assert that this highly-colored substance destroys the bacteria, and promotes the formation of granulations and of a new epithelium. Scheele, however, called attention to poisoning from the use of scarlet red, and especially to its dangerous action on the kidneys, as revealed by albuminuria. Gurb ski reported a case of general poisoning and albuminuria after the application of this salve. Limbar do referred to anaphylaxia as the cause of a case of generalized dermatitis from the use of scarlet red salve. Ravogli used it for some time on old chronic leg ulcers with no perceptible benefit. In some cases complaint followed as to the irritation produced and he was compelled to use borated ointment or wet compresses to relieve irritation.

**Dynamic Action of Foodstuffs.**—The results of calorimetric experiments on dogs are reported by Graham Lusk, New York (*Journal A. M. A.*, Sept. 5, 1914.) The paper deals with the somewhat complicated problem, of why the various foodstuffs increase heat production, and in the first place, Lusk says, the heat production has nothing to do with intestinal activity, as held by Zuntz. This has been established by Rubner, Benedict and others as well as by Lusk. To determine the effect of sugar and amino-acids experiments have been devised in which a dog was given a standard maintenance diet every evening and eighteen hours thereafter, when the gastro-intestinal tract is empty, the basal metabolism was measured. In one dog on which eighty-two experiments were performed, the basal metabolism averaged at different intervals 16.7 calories per hour, and scarcely varied from this for nearly three months. The effects of a substance to be tested was measured by giving it eighteen hours after the standard diet and noting the change from the normal basal metabolism. Very large increases of 38, 44 and 48 gm. were observed after the administration of glucose, fructose and sucrose. The transformation of fructose in the body, according to modern theory, is produced through the intermediation of methylglyoxal. The effects observed cannot be attributed to the breaking up of sugar in the inert fluids of the body or by Benedict's explanation, by the stimulation of acids formed in the intermediary metabolism of sugar. The metabolism of amino acids was also studied, and the view that has been held by Lusk is that the increased heat production is due to the stimulation of the protoplasm to higher activity through the mass action of the accumulated amino-acids. The metabolism induced thereby can be defined as the metabolism due to the stimulation of amino-acids to contrast it with the metabolism due to plethora. In conclusion, Lusk says: "It may be stated that living cells metabolize carbohydrates and fats in increased quantity when these are present in large amounts in the surrounding fluid, and that they are also stimulated to a higher heat production during the metabolism of certain amino-acids to an extent which is entirely out of proportion to the energy value of those amino-acids, and which may indeed be independent of their energy value."

## NEW AND NONOFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies, 1914, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

**Arlco-Urease.**—A standardized preparation of the ureolytic enzyme obtained from the soy bean. It decomposes urea into ammonia and carbon dioxid and is used in the estimation of urea in urine, blood and other body fluids. The ferment is added to a measured amount of urine and, after a time, the amount of ammonia formed is determined. Arlington Chemical Co., Yonkers, N. Y. (*Jour. A. M. A.*, July 11, 1914, p. 165).

**Urease-Dunning.**—A highly potent and standardized preparation of the ureolytic enzyme obtained from the soy bean. It decomposes urea into ammonia and carbon dioxid. It is used for the determination of urea in urine, the amount of ammonium carbonate formed from the ammonia and carbon dioxid produced is determined by titration with volumetric acid. Urease-Dunning is supplied only in the form of Urease-Dunning Tablets, containing 0.025 Gm. Hynson, Westcott & Co., Baltimore, Md. (*Jour. A. M. A.*, July 11, 1914, p. 165).

**Electrargol for Injection.**—Ampules containing 10 Cc. electrargol in the non-isotonized condition. Comar & Co., Paris, France (*Jour. A. M. A.*, July 11, 1914, p. 165).

**Styptick Applicators, Alum 75 per cent.**—Sticks tipped with a mixture of alum 75 per cent and potassium nitrate 25 per cent. Admitted to the Appendix to New and Nonofficial Remedies. Antiseptic Supply Co., New York (*Jour. A. M. A.*, July 11, 1914, p. 165).

Since publication of New and Nonofficial Remedies, 1914, the following articles have been accepted for inclusion with "N. N. R." During the current month no articles have been accepted by the Council on Pharmacy and Chemistry:

H. M. Alexander & Co.:

Normal Horse Serum; Typhoid Vaccine, Immunizing.

Antiseptic Supply Co.:

Causticks; Caustick Applicators; Cupricsticks; Stypticks; Styptick Applicators, Alum 75 per cent.

Arlington Chemical Co.: Arlco Urease.

Comar & Cie:

Electrargol; Electrargol for Injections 10 Cc. Ampoules.

Farbwerke Hoechst Co.: Amphotropin; Erepton.

Fairchild Bros. & Foster: Trypsin.

Franco-American Ferment Co.:

Lactobacilline Tablets; Lactobacilline Liquide, Culture A; Lactobacilline Liquide, Culture D; Lactobacilline Liquide, Infant Culture; Lactobacilline Glycogene Tablets; Lactobacilline Glycogene Liquide; Lactobacilline Milk Tablets; Lactobacilline Milk Ferment; Lactobacilline Suspension.

Hoffmann-LaRoche Chemical Works:

Thiocol; Syrup Thiocol, Roche; Thiocol Tablets.

Hynson, Westcott & Co.:

Phenolsulphonephthalein, H. W. & Co.; Phenolsulphonephthalein Ampules, H. W. & Co.; Urease-Dunning.

Merck & Co.: Cerolin.

H. K. Mulford Co.:

Acne Serobacterin; Anti-Anthrax Serum, Mulford; Antistrep-tococcus Serum Scarlatina, Mulford; Coli Serobacterin; Culture of Bulgarian Bacillus, Mulford; Disinfectant Krellos, Mulford; Neisser Serobacterin; Pneumo Serobacterin; Salicylos; Scarla-



tina Strepto Serobacterin; Staphylo-Serobacterin; Staphylo Acne Serobacterin; Strepto Serobacterin; Typho Serobacterin.

Riedel & Co.: New Bornyval.

Reinschild Chemical Co.: Phenolphthalein Agar.

E. R. Squibb & Sons:

Sodium Biphosphate, Squibb; Tetanus Antitoxin, Squibb; Tetanus Antitoxin, Squibb, 5,000 units.

Hoffman-LaRoche Chemical Works: Digalen:

The Council has voted that the acceptance of Digalen and Digalen Tablets be rescinded and that these products be omitted from New and Nonofficial Remedies. A report explaining this action has been authorized for publication.

Since publication of New and Nonofficial Remedies, 1914, and of the supplement to New and Nonofficial Remedies, 1914 (July 1, 1914), the following articles have been accepted for inclusion with "N. N. R.":

Antiseptic Supply Co.: Stypstick Applicators, Alum 75 per cent.

Arlington Chemical Co.: Arlco Urease.

Fougera & Co.: Electrargol for Injection, 10 cc. ampules.

Hynson, Westcott & Co.: Urease-Dunning.

H. K. Mulford Co.: Hypodermic Tablets of Emetine Hydrochlorida.

Waukesha Health Product Co.: Hepco Flour, Hepco Dodgers, Hepco Grits.

E. Fougera & Co.: Electrargol.

At the request of the manufacturer—Comar & Co., Paris—the Council has recognized E. Fougera & Co., New York, as the American selling agents for the product. Also in view of information received from Comar & Co. it has modified the New and Nonofficial Remedies description for Electrargol to indicate that this product now contains the equivalent of .4 per cent of metallic silver.

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**Antitoxin in Diphtheria.**—S. S. Woody, Philadelphia (*Journal A. M. A.*, Sept. 5, 1914), says that he is entirely satisfied that diphtheria antitoxin as generally used is given in doses far too small. The object we have in view is the rapid and complete neutralization of the diphtheria toxins by a single large dose of the antitoxin, if possible. This cures the patient rapidly, minimizes complications and the infectious period is shortened. The location of the disease process and its extent, the virulence of the infection and the patient's general condition should, of course, be considered, but he thinks that no case, however mild, should receive less than 10,000 units, and when both tonsils are well covered with exudate and the palate, uvula and nose involved, and the disease of three days' duration or more, he would give 150,000 to 300,000 units. In nasal cases with marked symptoms of toxemia from 50,000 to 150,000 units; in laryngeal cases from 30,000 to 45,000 units and a corresponding increase of dosage when combined with other varieties. A practical advantage is the avoidance of the discomfort and pain of frequent doses. He holds that large doses are not more harmful than small ones, as less serum is administered and the possibility of anaphylactic shock is so distant that it should not influence us in the least. He doubts whether we have as yet used diphtheria antitoxin in doses that give its full therapeutic efficiency. The results in the author's cases are reported for the various years from 1908 to 1912, showing a marked decrease in the mortality with the increased doses.

## The Academy of Medicine of Cleveland

### COUNCIL MEETING

At a meeting of the Council of the Academy of Medicine, held Wednesday, September 9, 1914, at the Bismarck, the following members were present. The president, J. J. Thomas, in the chair; Doctors Updegraff, Houck, Follansbee, Kopfstein, Ford, Lueke, Sanford, Stoner, Weir, and Tuckerman.

The minutes of the last meeting were read and approved.

On motion, the following applicants were elected to membership: Active—Ward C. Bell, Walter Peters. Associate-Veterinary—R. A. Greenwood, Canal Dover, Ohio.

On motion, the names of the following applicants were ordered published: Active—Amos E. Fried, W. P. Hribal, E. P. Neury. Associate-Pharmacist—Carl Winter.

A communication from the Ohio Women's Christian Temperance Union in regard to co-operation with them in the present contest for making Ohio a dry state was read. On motion, the secretary was directed to state that the Council did not feel authorized to act for the members of the Academy in the matter.

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**Diphtheria.**—Active immunization by toxin-antitoxin was first used by Behring in 1913. Since then the reports regarding it have been somewhat varying. W. H. Park and A. Zingher, assisted by M. H. Serota, New York (*Journal A. M. A.*, Sept. 5, 1914), give their personal experience with the method. During the past twelve months, they say, the attempt has been made to immunize actively against diphtheria the patients in the scarlet-fever wards of the Willard Parker Hospital, where an average of about one-quarter of the inmates are diphtheria carriers. "For this purpose mixtures of diphtheria toxin and antitoxin were prepared, either neutral or slightly toxic to the guinea-pig. A strong diphtheria toxic was used, where the minimum lethal dose was 0.0023 c.c. and L + dose 0.27 c.c. The mixtures represented B 50 per cent, A 66 per cent, G 66 per cent, F 80 per cent and E 90 per cent L + toxin to each unit of antitoxin. One c.c. of Mixture E caused when injected into a guinea-pig at first a slight local induration and then in about twenty days paralysis." The injections were made subcutaneously or intramuscularly in doses of from 0.25 to 1 c.c. of undiluted vaccine; a few of the non-immune persons received as high as from 3 to 5 c.c. at each injection. The dose was repeated two or three times at intervals of three to seven days. The injections were made posteriorly in the intrascapular region. The local reactions consisted as a rule of varying degrees of redness, induration, pain and tenderness, according to the size of dose or individual susceptibility. The results of the active immunization were controlled by determining the antitoxin content before the injection, again three weeks afterward or a little more, similar examinations were made. They found that persons with natural antitoxin gave a ready response to active immunization, while others without it failed to do so in a considerable proportion of cases. Their year's experience assures them that persons with a negative Schick reaction can be safely exposed to diphtheria. Those exposed to infection should be passively immunized, but the use of the Schick test will eliminate the necessity of immunizing about two-thirds of those subjected to exposure. Those found to be naturally immune continue as a rule to remain so. They conclude that active immunization certainly has a future. The exact value and the conditions under which it will be used are to be determined in the future.



## THE AMERICAN COLLEGE OF SURGERY—A SHORT HISTORY

The first convocation of the American College of Surgeons occurred in the Gold Room of the Congress Hotel, Chicago, on the evening of November 13, 1913.

The prospective Fellows were invited to sign the roll of membership at this place during the day. The roll was furnished in loose-leaf form, and a corps of assistants presided over the formality of signing in a manner to make it possible for a large number to be accommodated in a short space of time. Each page of the roll was headed by a pledge or contract, and to this the Fellow appended his signature and address.

### Fellowship Pledge

Recognizing that the American College of Surgeons seek to develop, exemplify and enforce the highest traditions of our calling, I hereby pledge myself, as a condition of fellowship in the College, to live in strict accordance with all its principles, declarations, and regulations. In particular I pledge myself to pursue the practice of surgery with thorough self-restraint and to place the welfare of my patients above all else; to advance constantly in knowledge by the study of surgical literature, the instruction of eminent teachers, interchange of opinion among associates, and attendance on the important societies and clinics; to regard scrupulously the interests of my professional brothers and seek their counsel when in doubt of my own judgment; to render willing help to my colleagues and to give freely my services to the needy. Moreover, I pledge myself, so far as I am able, to avoid the sins of selfishness; to shun unwarranted publicity, dishonest money-seeking, and commercialism as disgraceful to our profession; to refuse utterly all secret money trades with consultants and practitioners; to teach the patient his financial duty to the physician and to urge the practitioner to obtain his reward from the patient openly; to make my fees commensurate with the service rendered and with the patient's rights; and to avoid discrediting my associates by taking unwarranted compensation. Finally, I pledge myself to coöperate in advancing and extending, by every lawful means within my power, the influence of the American College of Surgeons.

### Program

8:00 Fellows and guests assembled.

8:15 Governors assembled.

8:25 Regents assembled with honorary guests.

Invocation by the Reverend J. G. K. McClure.

Presentation of the Roll of Fellows and Honorary Fellows by the Secretary.

Conferring of Fellowships by the President.

Introduction of Honorary Fellows individually by the Regents and conferring of Fellowships by the President.

Fellowship address by Sir Rickman J. Godlee.

Presidential address by J. M. T. Finney.

Adjournment followed by reception of the Fellows and Guests by the Officers of the College and Sir Rickman J. Godlee.

### Conferring of Fellowships

Sir Rickman J. Godlee, of London, was introduced by Regent W. W. Chipman. Before the degree, the President, Doctor J. M. T. Finney, received the candidate and said:

"Sir Rickman J. Godlee, student, versatile author, distinguished surgeon, worthy member of a family whose name is known and honored wherever antiseptic surgery is practiced, President of the Royal College of Surgeons of England, the highest honor within the gift of his profes-

sional associates at home. His presence here is a renewed evidence of the mutual high regard and esteem held for each other by the two great English-speaking nations."

The President then conferred upon Sir Rickman J. Godlee an honorary fellowship in the American College of Surgeons.

William W. Keen, of Philadelphia, was introduced by Regent George W. Crile. Before conferring the degree, the President received the candidate and said:

"William Williams Keen, nestor of American surgery after a professional life covering fifty-two years. As a leader of the Jefferson School of Philadelphia, he links us with the great professional names of the nineteenth century. Army surgeon, teacher, operator, writer, publicist, traveler, patron of art, promoter of the best in higher education, public spirited citizen, recipient of the greatest gifts in American medicine, Honorary Fellow of the Royal College of Surgeons of England and of Edinburgh, he is honored throughout Europe. Wherever good surgery is regarded, there he is quoted."

The President then conferred upon Doctor William W. Keen an honorary fellowship in the American College of Surgeons.

William Stewart Halsted, of Baltimore, was introduced by Regent Charles F. Stokes. Before conferring the degree, the President received the candidate and said:

"William Stewart Halsted, surgeon, teacher, investigator, honored at home and abroad; contributor to the progress of science. One of the four distinguished founders of the Johns Hopkins School of Medicine. His gifts to surgical technique, to numerous valuable operations now the standard, and to many great advances in surgical physiology and pathology, have brought to him international renown. Honorary Fellow of the Royal College of Surgeons of England and of Edinburgh, with undiminished vigor he still pursues his valuable career."

Following this, honorary degrees were conferred *in absentia* (candidates being unable to attend because of illness) upon J. Collins Warren, of Boston, and Robert F. Wier, of New York.

### Fellowship Address

Sir Rickman Godlee, President of the Royal College of Surgeons of England, was introduced by the President, J. M. T. Finney, and upon rising, was received with prolonged applause, the entire audience rising to greet him. Before reading his formal address, he presented a greeting to the American College of Surgeons, in the form of an illuminated parchment, from the Royal College of Surgeons of England.

### Greeting From the Royal College of Surgeons

We, the Council of the Royal College of Surgeons of England, have heard with much interest of the approaching inauguration of the American College of Surgeons. We hereby convey to it our hearty good wishes, and express the hope that it may have a successful career and fill a position beneficial alike to the Profession and to the Community.

We cannot forget the important advances in the Science and Art of Surgery achieved by many distinguished surgeons in the Continent of America during the past, and are proud to have enrolled upon our list of Honorary Fellows the names of some of the most active workers in these fields at the present day.

In accepting the invitation for our President to take a part in the opening ceremony, we desire to show that we appreciate the intention of the American College to strengthen the bonds that already unite the Medical Profession amongst the English-speaking peoples. It is a sentiment which always meets with a cordial response in this country, and it is one which this College will endeavor to support by all the means in its power.



In witness whereof we have caused the Common Seal of the College to be hereunto affixed this 9th day of October, 1913.

President: RICKMAN J. GODLEE.

Vice-Presidents: G. H. MAKINS.

(SEAL)

### Abstract of Address

In the first place it was pointed out that it is difficult for anyone, and especially for people living in America, to appreciate the conditions in England at the beginning of the fourteenth century. This was near the end of the middle or dark ages. The military spirit prevailed, science was under a dark cloud, and medicine was not in advance of other sciences. Surgery was not so much respected as medicine. Surgeons indeed were classed with barbers and for the most part belonged to the Barbers' Guild, which was formed in 1308. It included those who practiced in minor surgery, but the better class of surgeons held aloof and formed themselves into the Guild of Surgeons.

Reference was then made to the origin of the guilds in the city of London. They were associations or fraternities of artisans for the supervision of the crafts and for regulating the hours of labor. They became important bodies, and elected the Lord Mayor and Corporation.

More than two hundred years later, namely, in 1542, the Barbers' Company and the Guild of Surgeons united and were incorporated as the Company of Barber-Surgeons. This company existed another two hundred years; namely, until 1745. They exercised extensive control over the surgeons of the country. They gave licenses to practice and sometimes deprived surgeons of their licenses; they supervised the public dissections which were the only form of anatomical study recognized by law; they appointed lecturers in surgery, possessed a censorship over books, and had other very important duties. The two bodies were, however, incompatible and in 1745 the Surgeons' Company was separated from that of the Barber-Surgeons. In 1800 they were established as the Royal College of Surgeons in London, and in 1843 the name was again changed, by a charter of Queen Victoria, to that of the Royal College of Surgeons of England.

The College of Surgeons had its first quarters in the Old Bailey, and later on moved to its present house in Lincoln's Inn Fields. The ancient titles of Masters, Governors, and Court of Associates were changed to those of President, Vice-President, and Council. The corporation consisted of the members. In 1843 a new class of members who were called Fellows was formed, from and by whom the Council henceforth was to be chosen, instead of being elected by the Council themselves as had been the case up to that date. The first Fellows were chosen from the members, being elected by the Council chiefly from the surgeons, assistant surgeons, and lecturers of the metropolitan hospitals, and they also included representatives of the naval, military, and Indian forces. But since that time the ordinary portal for admission to the Fellowship has been an examination—or rather, two examinations—which constitute a formidable and searching test of ability. The class of members now numbers over 17,000; the Fellows number 1,589.

Reference was then made to the new American College of Surgeons, and to the methods of recruiting its Fellowship. After describing in some detail the examinations above referred to, a contrast was drawn between the English and American Colleges. Some of the other functions of the English College were passed in review, especially that of the discipline which it can exercise over its Fellows and Members. In connection with the examination for the diploma of membership, the question of a uniform system of admission to the medical profession was discussed, and in this connection it was pointed out how in England attempts are being made to secure this result.

In conclusion, the relations of the Royal Colleges of Physicians and Surgeons in London was referred to, and the opinion was expressed that as surgery advances, the tendency will be for these two great departments of the profession to be drawn more closely together.

### Presidential Address

President J. M. T. Finney then delivered the presidential address which has been printed in full and distributed to the Fellows of the American College of Surgeons and to members of the profession. In brief he said:

"The highest development of the greatest efficiency along all lines of public service relating in any way to our profession." With this as the keynote, the American College of Surgeons was launched by Doctor Finney on what is thought by all concerned to be a career of usefulness for the public at large. "The history of surgery in the United States and Canada," said Doctor Finney, "is opened to a new page. When at some future time the historian comes to write on that page the record of events that has led up to this meeting, he will record the taking of another step in the progress of medicine in general and of surgery in particular in Canada and the United States. What is consummated here tonight is destined to produce a deep and lasting impression upon medical progress not alone in those countries but indirectly the world over.

"The present and future welfare of the profession has been for a long time uppermost in the minds and very close to the hearts of many of us. We have pictured to ourselves in this connection a profession ennobled by men actuated solely by their desire to devote their time and their talents to the relief of suffering humanity, willing, yes, glad at any time if need be to lay down their own lives for those of their fellow-men; whose membership should embrace only men of singleness of purpose, unselfish, high-minded, zealous in their efforts to wrest from nature the keys to her many mysteries; men who unconsciously, perhaps, in character and conduct, reflect in varying degree the life and spirit of the Great Physician; a profession free from taint of commercialism or graft in which there shall be no room for the base, the unscrupulous, the ignorant or unskilled; in which the test for membership has to do only with character and attainment.

"Our hopes and dreams, so long dim, shadowy, and unreal, are about to assume definite and concrete form. We are assembled here this evening to witness, indeed to assist, at the birth of a new agency for good, both to the public and to the profession; to bid Godspeed to this lusty infant, the American College of Surgeons, the offspring of a fruitful union between a deep-rooted and praiseworthy desire within the profession to elevate its standards of ethics and efficiency, and a lively sense of the urgent and long-felt need of its accomplishment.

"The aim of this organization and the reason for its existence lie in its disinterested and unselfish efforts to elevate the standards of the profession, moral as well as intellectual, to foster research, to educate the public up to the idea that there is a difference between the honest, conscientious, well-trained surgeon, and the purely commercial operator, the charlatan and the quack; furthermore, that the term 'surgeon' means something more than a suave manner, a glib tongue, a private hospital, a press-agent, and the all too easily acquired diploma, with its accompanying title of 'doctor.' The standardization of surgery is absolutely essential to guard the public against such as these, as well as to preserve the honor of the guild itself. So far as the public is concerned, it is necessary to protect it from those who would prostitute their high office for gain, from the ignorant and the untrained, from those who by reason of the lack of surgical judgment and skill are incompetent. The American College of Surgeons has been called into being as an active, vigorous, virile protest upon the part of the profession against this unhappy state of affairs.

"The public and professional minds should therefore be at once



thoroughly disabused of any wrong impression that the College is to be run by any one man or set of men, or by or in association with any pre-existing organization for his or their personal gain or aggrandizement. The American College of Surgeons is no surgical trust, no close corporation for the benefit of the few. It plays no part whatever in medical politics; it does not interest itself in the advancement of any corporation or group of individuals, nor in any special school or cult of medicine. It stands only for the good of humanity and the uplift of professional standards."

### THE SECOND CONVOCATION

The second Convocation of the American College of Surgeons was held in the ballroom of The Bellevue-Stratford, Philadelphia, on the evening of June 22, 1914. Here prospective Fellows were invited to sign the membership roll during the day.

#### Program

8:00 Fellows and Guests assembled.

8:10 Governors assembled.

8:20 Candidates for Fellowship assembled.

8:25 Regents assembled with Honorary Guests.

Invocation by Bishop Philip M. Rheinlander.

Introductory remarks by the President.

Presentation of the Roll of Candidates for Fellowship by the Secretary.

Conferring of Fellowships by the President.

Introduction of Honorary Fellows individually by the Regents and conferring of Fellowships by the President.

Fellowship Address by Doctor James G. Mumford.

Concluding Remarks by President, J. M. T. Finney.

Adjournment, followed by an informal reception.

#### Conferring of Fellowships

Doctor Edmond Souchon, of New Orleans, was introduced by Regent Rudolph Matas. Before conferring the degree, Doctor J. M. T. Finney received the candidate and said:

"Edmond Souchon, American of French descent, himself of the best French training. Eminent as a teacher, anatomist, surgeon, sanitarian, and original contributor to the literature and technical advancement of his profession. Ingenious in devising graphic methods of illustration in the teaching of anatomy. Founder and organizer of an unrivaled museum of anatomical, surgical, and pathological dissections, all prepared in a masterly fashion with his own hands, and mounted and preserved with extraordinary effectiveness by methods of his own invention. Conspicuous in surgery—among other enduring contributions by his monumental history of the subclavian artery and its lesions—he exemplifies the highest ideals of the great Southern school in connection with which his life's work has been done."

Doctor Francis J. Shepherd, of Montreal, was introduced by Regent Frederic J. Cotton. Before conferring the degree the President received the candidate and said:

"Francis John Shepherd, author and teacher for over forty years, a conspicuous figure in the world of surgery. Educated in the best professional schools of his own country and abroad. Representative of the highest culture and best traditions of the Canadian school. Recipient of the highest honors here and at home, Honorary Fellow of the Royal College of Surgeons of England."

An Honorary Degree was conferred *in absentia* upon Doctor Thomas Addis Emmet, whose name was presented by Regent W. D. Haggard. The President said:

"Thomas Addis Emmet, a Virginian born and reared, whose dis-

tinguished work has been done in the North. A survivor of the antebellum surgery, he himself has entered fully and successfully into the modern era. One of the first and best known of American gynecologists, as an operator, writer, teacher, and practitioner, he was a leader far beyond his own generation of the surgical giants of our America in the nineteenth century.

### Fellowship Address

Doctor James G. Mumford, of Clifton Springs, was introduced by President J. M. T. Finney, and delivered the fellowship address.

Concluding remarks by President Finney. Adjournment was followed by an informal reception.

### Applications for Fellowship

Nearly four thousand applications for fellowship in the College had been filed up to June 1, 1914. Of this number the Committee on Credentials recommended to the Board of Regents 1,059 for fellowship at the first convocation, and 1,055 at the second convocation. A large number of the applications still on file will undoubtedly be found to represent successful candidates, when they have been considered by the committee.

### Future Convocations

The third Convocation and the annual meeting will convene in November, 1914, the date and place to be announced later.

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## FELLOWSHIP ADDRESS

### The Practical and the Ideal

By JAMES G. MUMFORD, M. D., F. A. C. S., Clifton Springs, N. Y.

Let us admit that this is a workaday world. It is a region in which practical persons are placed to get things done. But it is a world of ideals also, and without ideals the practical man is naught. In politics, in literature, in the arts and in science we must see the end and a proper purpose, else our practice is but as ashes between the teeth. Great purposes call for great men. If we cannot all be great, let us at least strive for that leveling up which the democratic shibboleth teaches—for indeed leveling there must be; and let us agree with Carlyle that gallant purposes and heroes are not all dead. One recalls a spirited passage from that trenchant writer: "I am well aware that in these days hero-worship . . . professes to have gone out and finally ceased. This . . . is an age that, as it were, denies the existence of great men—denies the desirableness of great men. Show our critics a great man, a Luther for example; they begin to, what they call, 'account' for him; not to worship him but take dimensions of him—and bring him out to be a little kind of man! He was the 'creature of the Time,' they say; the Time called him forth; the Time did everything, he nothing but what we, the little critics, could have done too! This seems to me but melancholy work. The Time called forth? Alas, we have known Time to call loudly enough for the great man, but not find him when it called."

Now observe that great *purposes*, great *endeavors*, as well as heroes, draw the same words from the critics. We are met here with a fine and genuine purpose, and after much endeavor. Is it nothing that we strive to elevate and to dignify the calling of surgery? Is it nothing that we see our shortcomings, and strain after better things? Is it nothing that some of the best minds in America have lent themselves to these thoughts, and that hundreds of us have come together with earnest purpose? Our censors, a dwindling band, may cry out that we are a company of idealists, and that we shall accomplish no practical object. Let us examine this matter somewhat; and that our ideals and our practice be clear in our own minds, let us submit ourselves first to the chill of definitions:—

An idealist;—what is he? An idealist I take to be a man who strives



after perfection. An idealist is not a visionary. A visionary is a man who seeks the impossible. All great men have been idealists, and all great purposes ideals. Julius Caesar was an idealist; so were Augustine and Columbus, Hildebrand and Alfred, Erasmus and Vesalius, Cromwell and Cavour, Washington and Robert Lee, Edison and Eliot,—but these men were sound practitioners as well. Who, then, shall define the *practical man* if we must divorce the practical man from the idealist, and bring them up by hand in separate groups. Are practical men those who are conscious of their own incapacity—the corner grocers of life, the mere children of routine? Such persons do pride themselves on being practical. Disraeli makes Coningsby say of them: “In the language of this School, a practical man is a man who practices the blunders of his predecessors.”

There is the story of the Irish farmer who took his thirty pounds of butter in to the market at Cork—butter loaded on a donkey, one saddle-bag holding the thirty pounds of butter, the other balancing with thirty pounds of stone. To the inquiring friend who asked why he did not balance and lighten his load by putting fifteen pounds of butter in each bag, Patrick retorted in displeasure: “Me grandfather loaded this way; and what was good enough for him is good enough for me.”

But let us not rule the practical man out of count. I take it that the proper practical man is that sane idealist with wit and knowledge to bring his plans to fruition. There is the bogus practical man and there is the true practical man—two personalities always to be distinguished. Mark them: The *bogus* practical man is the man without vision and so without ideals. Such a man can never be truly successful in this land. His purposes are not ours. At bottom we are a nation of idealists. All our history shows it. The bogus practical man is the smug, shrewd fellow who sees some occult knavery in the acts of his neighbors; whose own temperament is knavish; to whom the word “service” is a word of derision; whose sole purpose is his own advancement and the accumulation of dollars. That is his word of words, and he will tell you that money is power. We used to be told that *knowledge* is power. Now, my friends, we who know the world know that this sort of practical man, this self-centered man, this bogus fellow, is a fool. He does not acquire knowledge; he does not acquire friends; he does not acquire power; commonly he does not acquire money. Rarely do we hear of him beyond the corner on which he plies his trade. Yet he sneers at honest men as idealists and as visionaries.

The true practical man, on the other hand, sees that genuine success, that distinguished purposes, can be reached only through frank coöperation, through organized effort, through community benefit, through generous competition. These qualities, these tools of progress, stand for and bring those good things which the bogus fellow seeks vainly through his methods of a crude individualism.

In our own case when we increase our collective efficiency, when we render a fuller and more honest public service, when we secure and confirm the respect of the community, by so much not only shall we improve the status of our profession, but we shall strengthen immensely our own individual cases as members of that profession. The fatuous civil laws governing biological research in Great Britain; the degraded imbecility of the judge in the recent animal-experimentation case here in Pennsylvania; the mortifying and ignorant encomiums of the daily press when dealing with occasional medical affairs, and their equally offensive howls when they have conceived cause for rebuke—all these may be matters for our silent scorn and derision. But such a situation is not a happy and stimulating situation. Instead of being thankful for the rare discriminating silence, we should look for intelligent appreciation, judicious interest, restrained and balanced support. As has recently been written of us—we repeat it modestly, I trust—“When the intellectual history of this time comes to be written, nothing will stand out more strikingly than the empty

gulf in quality between the superb and richly fruitful scientific investigations that are going on and the general thought of other educated sections of the community." The deep fundamental reason for the value of scientific work is that as a class we scientific men honestly seek the truth. Instinct and experience teach us that lacking the truth established with every forward step, our progress would be vain. In that, we differ from all the others—the metaphysicians, the clergy, the lawyers, the writers; they are partisans and advocates; they hold their briefs. And so perhaps the greatest function that science as a whole has to perform is the setting up of high standards, thus teaching to men square dealing, straight seeing, just thinking, truth-telling, and temperance in statement, in precept, and in practice.

Much of this may sound like preaching, but my argument is driving at this: that we here, as members of this College, have an opportunity, collectively and individually, to uphold standards and to forward greatly a branch of science which appeals peculiarly to all men. More than others of our kind, we are continually in the public eye; and so much the greater is our responsibility.

Let us admit humbly, that we of this College encounter skeptics and critics in the medical profession and even in our own ranks. Let us meet their criticism by performance. These doubters tell us sundry unpalatable things—that we represent a local group; that they have axes to grind; that some persons are cat's-paws; that our organization is an imitation; that we cannot influence the community; that bad surgery will flourish in spite of us; that pernicious fee-splitting cannot be eliminated; and that we assume a "holier-than-thou" attitude which will alienate good men.

While much of this talk is carping and jealous, still, much of it is honest, and we should not disregard it. Let us sift it for a moment: The allegation that we are a local group disproves itself at once. Glance at our list of officers and Fellows—and it will be seen that we represent the honest surgery, general and special, of the continent. That criticism of parochialism at least is not well-founded. We hear it said that there are axes to grind. Who shall say, We trust not. The criticism is so general and so nebulous that it cannot be answered specifically. The same charges are made against all voluntary organizations. In a sense they all have axes to grind. If not, why should they exist? But who shall define that ax-grinding purpose? If critics mean that we propose to improve American surgery, to amend our individual status, to hold incompetents at a distance, perhaps to influence the public, as well as state and federal legislation—doubtless the ax-grinding charge is true. But we are not exclusive; all honest, competent men and women, after proper scouting, are to be admitted to our ranks. This ax-grinding charge, so far from showing moral turpitude, represents an honorable ambition. As to the cry of "cat's-paws," who are the designing ones, and who are the dupes? The personnel of our well-known and distinguished Board of Regents renders that cry ridiculous. Then we are charged with being an imitation of the English Royal College. Why not? That is an excellent model; in fact, however, the charge is absurdly untrue. Our method of incorporation, our lack of grading, our numbers, and our form of government and administration disprove the statement.

There remains the one serious and adverse charge: that we cannot influence for good the profession and the community, and that our purpose is chimerical.

That is a matter for our earnest consideration. I have already referred to it. What do our critics mean by this cloudy prognosis? They tell us that a stream cannot rise higher than its source—a true saying and worthy the literary acumen of these doubters. Such a statement in this connection would be ludicrous did it not show a pathetic ignorance of life and of historic values. Proverbs and legends fortunately do not rule the world. No progress in human affairs ever would have been made had our race sat supine waiting for the source to elevate itself. And who



are these fellows that prattle of sources? The sources of human endeavor, I take it, lie in human needs; and those sources are raised by united human effort following the prophets and the gallant leaders. Are we to admit now that foresight and courage have been lost from among us?

Again, what *are* the sources of good American surgery? Where are they to be sought? Our critics talk as though these sources were to be found in the weary rank and file, among the general practitioners, among the over-driven and the less expert. Shall we admit this? Shall we look there for our sources, much as we admire and respect these much over-worked men? In all human activities, indeed, we demand a high general average if distinguished action is to evolve; but the true sources are to be found in the fountains and not in the low-lying springs. The sources of all distinction lie in the precepts and in the examples of leaders. And these leaders need for their fullest development sympathetic human stimulus and human appreciation. The teacher without a following falls fallow; the most devoted scientist—even a Fabre—without pupils and an audience, eventually will relax. All this means, and history shows, that a competent, well-trained, earnest body of men, with definite, practical objects in view, and under distinguished united leadership, invariably succeeds. So much for our leading purpose—the maintaining of high and honorable standards.

How is the community to profit? Obviously, by the steady raising of our surgical standards and ethics; but especially, by the recognition and the practice of having their surgical dealings with a company of men and women united jealously to guard and to maintain those standards and those ethics. The time must shortly come when all men shall recognize the letters of our diploma as a genuine sign manual.

Here, perhaps, is the place in which I might be expected to say some word on the subject of fee-splitting—that evil practice against which we have set our faces. A few words such as I have previously spoken must suffice. What is fee-splitting? *It is the buying and selling of patients.* The public knows little of this naughtiness. Even if you explain, they see little wrong. Fee-splitting is practiced at times by the merchant, the shopkeeper, the clergyman, the lawyer, the farmer, and the mechanic. Obviously, it means a commission, a bonus, or a “rake-off” for the good will, the good word, or the friendly act of a fellow-craftsman. But fee-splitting in ordinary business is a mild offense, or no offense at all, and differs from medicosurgical fee-splitting in this: that in ordinary business the customer is not necessarily made to suffer, because there is commonly a recognized fixed charge for commodities and for service. The customer knows this and counts upon the inevitable profit of the middleman. If a farmer can produce eggs for fifteen cents a dozen, and if the customer pays the grocer thirty cents a dozen, there is no secret connivance anywhere in the transaction. Thirty cents is the market price, and the customer knows that the fifteen cents profit is somewhere properly divided between the farmer and the intervening grocer. The same rule is recognized as proper and true of other commodities. The public, knowing the market prices, expects to allow for reasonable profits, and expects to pay more than the cost of production. Medicosurgical fee-splitting is another matter and occupies a bad position peculiarly its own. It is graft; it is blackmail by the general practitioner; it is bribery by the guilty surgeon. Through such transactions the unscrupulous surgeon *buys* his patient from the unscrupulous family doctor as surely as he buys flour from the grocer. *Fiat justitia, ruat coelum.* Again, let us scan our ethics, and let the crusade advance.

Finally, there is that “holier-than-thou” reproach. How are serious and self-respecting men to meet such an accusation? If a man tells me that I am a donkey, no amount of argument will convince him to the contrary. That’s a point of view. We set a standard, and we try to live

up to it. We may fall short of our ideal; but that is no argument for setting no standard at all.

As one stands here looking into the faces of this great company, moved by a common object, shall not one feel stimulated to an expression of hope and purpose, even though the spirit of prophecy no longer walks freely abroad? Without purpose and a genuine program no enterprise shall long endure. But *we shall* endure, and there are reasons for our conviction:

First, we plan, as has been so often said, to set a high standard for American surgery. We have already admitted those men only who gave proofs. By proofs we do not mean necessarily the mere writing of papers for medical journals—that fatuous and exaggerated test of ability, which may or may not be evidence of worth. By proofs we mean the faithful, daily routine care of the sick, using the best methods, applying the best technique, accommodating our hands to the facile use of our tools; but more than all, through study, through devotion, through self-effacement, through whole-hearted probity, through staging the scene always for the patient and never for the operator, to develop that elusive and rare product of common sense, known among the elect as surgical judgment. We do not open our ranks to men of age and wide experience only. We recognize eagerly the contributions of progressive and accomplished young surgeons. The diplomas of their schools, hospitals, and states certify to their right to practice. A few years of further independent experience qualify them for our examinations and admission to the College. We count on their interest and support; every one of them must join us, for on them shall depend finally our future, and the success of this endeavor. We must not neglect to do missionary work among them. We are weary, wary, and experienced in many things. They are fresh, unreflecting and joyous; but they too must assume the *toga virilis* and the burdens. So shall they mature in an atmosphere of purpose and resolve.

Secondly, it is not too early for us to be considering matters of state and national legislation. Collectively we can bring to bear on lawmakers our convictions regarding animal experimentation, questions of public health, quackery, legal responsibility, and medicolegal abuse, especially those standards of surgical education which shall qualify a man to take in hand the lives of his fellows. For this surgical responsibility is a great and pressing matter, and grows more serious as years pass. The old imperative surgery, which dealt mainly with the removal of tumors, the healing of fractures, the relieving of obstructions, and the checking of hemorrhage, was a relatively simple thing, and was readily comprehended by the courts. The modern surgery of choice, which deals as well with tissue reconstruction, with repair, with the problems of physiology and chemistry, with the restoration of function, with normal growth and development, and finds itself concerned with all the organs of the body, irrespective of their vital significance—this new surgery demands surgeons of special training, of wide learning, qualified in technique, grounded in the humanities, versatile, patient, wise. The work of such men the intricacy of their problems, the results of their judgment and the outcome of their labors are not to be measured by foot-rules, to be weighed against dollars, or to be gauged by callow juries. Justice and equity call for reform in medicolegal practice.

Thirdly, we have already bound ourselves to discountenance ethical evils. By that we mean especially the division of fees. But there are other things. Observe, as I have said elsewhere, that there is a feeble and fatuous word, *etiquette*, by which the unthinking are wont to cloak the noble qualities of ethics. Alas! that such a Turveydrop semblance should have been given a precedence by feeble minds; that the outward and visible sign should push aside the inward and spiritual grace.

*Ethics* signified originally *character*. It deals philosophically with conditions which affect the human family for good or ill. *Etiquette* codifies the superficial relations which govern men in the drawing-room or the



club. Ethics directs that there shall be honor among gentlemen; etiquette, that they shall tread softly and wear evening dress. Hippocrates marked the distinction. That great man, in his oath, struck at the root of the matter, and like St. Paul himself, gave us rules that shall prove sound through all time.

Good ethics, then, is to be found among surgeons who, following the teaching of Hippocrates and Aristotle, of Celsus and Galen, maintain that he is the upright scientist who pursues his art by the light of sound reason; who draws his conclusions and guides his practice by deductions founded on accurate observation; who observes that clear inductive method which is older than history; who abhors exaggeration and pretense; who practices square dealing; who conducts himself toward his fellows and toward the public as a generous and honorable man.

Fourthly, to the end that these and other good things may be the more effectively and securely accomplished, it has seemed to the far-seeing men who conduct our affairs that this College should have a permanent physical foundation—a home of its own. Wherever such a home may be places, its almost imperative need and value are apparent. Beneath its roof should be gathered our essential equipment: a dignified hall for convocations; suitable examination rooms for our candidates; proper offices; social meeting rooms; a proper library of current and periodical surgical literature, which should also house and protect the many objects of historic value which time shall store in our archives; and perhaps also, a carefully selected and representative museum.

Through such means a home for the College will prove pleasant and profitable, but this home will be of far the greatest value to us as a human center, as a common meeting ground for men embarked in a common pursuit. Indeed, we have come strongly to believe that without this meeting ground our purposes and our enterprise itself may come to naught. We men are gregarious creatures; we have our customs, our habits, our folkways, and our modes of speech. We say that in undertaking this College we have a common purpose—and yet, as a rule, we know little of each other. We often live far apart; we view the world and its details from different angles; we have our local notions, prejudices, ambitions. Experience of civil life in a democracy teaches us how easy it is for men with a common purpose, but without a common background, to drift apart, to cultivate antagonisms, to form parties. Even among men of science and of clear perception, these things have been troublesome in the past. To differ in opinion is our human attribute; but among us, differences should not bar the horizon; they should lead merely to effectiveness—provided we come to know and understand each other. Acquaintance, friendly knowledge, good fellowship—these are pleasant and comfortable experiences, and through them, cultivated beneath a common international roof, let us believe we shall unite effectively for the work we have in hand.

Such are some of our immediate purposes, and such are some of the thoughts, obvious enough, which come to mind as one views the future.

Mr. President and Fellows, the American College of Surgeons has been the hope of idealists for more than a generation. Now after two years of practical effort we see it accomplished. With Horace, fervently let us say:

*"Labitur et labetur in omne volubilis ævum."*

#### Cleveland Membership of the American College of Surgeons

Henry A. Becker  
M. Emmett Blahd  
Charles Edwin Briggs  
William Evans Bruner  
Frank E. Bunts  
William Bricker Chamberlin  
George W. Crile

William E. Lower  
B. L. Millikin  
Gordon Niles Morrill  
George Henry Quay  
Hunter Robb  
E. G. Rust  
Henry L. Sanford

Franklin E. Cutler  
John V. Gallagher  
Carl A. Hamann  
Frederick C. Herrick  
J. M. Ingersoll  
Secord H. Large  
Edward Lauder  
John Nicholas Lenker

Roland E. Skeel  
Harry Gordon Sloan  
A. F. Spurney  
Walter G. Stern  
George Dwight Upson  
William Hawksley Weir  
James Craven Wood.

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**Energy Requirement in Disease.**—E. F. DuBois, New York (*Journal A. M. A.*, Sept. 5, 1914), reports experiments to determine the energy requirements in various diseases by the calorimetric observations. Both indirect and direct methods were used. It is comparatively easy, he says, to determine the total metabolism, but difficult to find the exact normal figure for comparison. He has measured the basal heat production in a number of normal persons and tabulates the results. While the results group themselves to the average figure of 34.2 when the metabolism is expressed in calories per square meter, and the metabolism of a given individual remains constant for years, there may be a variation among normal men of 10 per cent above or below the average. The limits may be wide when we compare the metabolism in babies, fat men and athletes, but they are narrow for men of approximately normal build. The studies on typhoid are reported elsewhere by Coleman, but Du Bois gives those on thyroid cases and some other conditions. The increases, he says, due to hyperthyroidism and the like, are small compared to those caused by muscular work, in delirium tremens or convulsions. A study of the charts is almost essential for the full understanding of the article. He says in conclusion: "It may be well to emphasize the fact that the nutrition of a patient depends absolutely on the relationship between his energy production and his food-supply. If the organism fails to obtain food from without, it will draw on its own glycogen store, fat depots and supplies of body protein."

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**Fewer Medical Colleges, Students and Graduates.**—The statistics published recently show that in the last decade there has been a marked decrease (about 35 per cent) in the number of medical colleges and corresponding reductions in the number of students and graduates. Of colleges the decrease was from 165 to 101; of students the decrease was from 28,142 to 16,502 and the number of graduates decreased from 5,747 to 3,594. There are some perhaps, who, not knowing the real cause, may look on these marked reductions with alarm and believe that this country will soon be suffering from a dearth of physicians. Alarming statements to that effect are already being circulated, but invariably these statements come from those interested in medical colleges conducted more as business enterprises than as educational institutions; those who look more to the incomes from students' fees than to the quality of physicians turned out. There would not have been the marked reductions referred to had it not been for the vast oversupply of medical colleges existing in this country ten years ago. That there is room for a still greater reduction of medical colleges; that there is no cause for alarm regarding a scarcity of physicians, and that the reductions referred to are distinctly in the interests of the public, are clearly evident to anyone acquainted with the facts.



## BOOK REVIEWS

**Practical Hormone Therapy**—A manual of Organotherapy for General Practitioners by Henry R. Harrower, M. D.; Sometime Professor of Clinical Diagnosis, Loyola University, Chicago; Fellow of the Royal Society of Medicine; Fellow of the American Medical Association; with Foreword by Professor Doctor Artur Biedl, Vienna. Paul B. Hoeber, New York, 1914, pp. 488.

As far as we know this comprehensive treatise is the only book in English on this subject. The author explicitly states that this is not a record of his personal clinical experiences, but that it is intended to collate from the enormous literature such knowledge as may lead the general practitioner "to a fuller appreciation of the therapeutic possibilities of hormones in the routine work of the average man."

To this end he has accumulated a large amount of data and the book is in effect a résumé of all the notable investigations regarding the role of the internal secretions, its authoritative value being enhanced by the fact that before its publication various chapters were submitted for criticism to leading investigators of the subjects of which they treat.

As is suggested by Biedl in his "foreword" this book in the hands of the general practitioner will make it possible for him to supply the research worker—the theorist—with many practical clinical data which will be of the utmost value.

The plan which has been followed in presenting the material is logical and suggestive. In different sections the author treats of the Hormones of the digestive system; of the metabolic glands; of the nervous system; of the reproductive system; and of the vascular system, while in a preliminary and a final section he presents a general outline and summary and gives practical suggestions regarding dosage, the preparation of extracts; the use of pluriglandular extracts, etc. The sections on thyroid and adrenal therapy seem to the reviewer to be of special value, but throughout the book the author has shown admirable judgment in balancing the merits of the data which he presents.

The general bibliography and the extensive lists of references which accompany nearly every chapter add greatly to the value of this work.

G. W. C.

**Clinical Manual of Mental Diseases**—By Francis X. Dercum, M. D., Ph. D.; Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia; Consulting Neurologist to the Philadelphia General Hospital; President of the Philadelphia Psychiatric Society; Ex-President of the American Neurological Association and of the Philadelphia Neurological Society; Foreign Corresponding Member of the Neurological Society of Paris and of the Neurological and Psychiatric Society of Vienna; Member of the Royal Medical Society of Budapest, etc., etc. Published by W. B. Saunders Company, Philadelphia and London, 1913.

This book of Doctor Dercum's is very well written and of about the right size to supply the student and physician not wishing to go too deeply into the subject of psychiatry, with the most important facts bearing upon this subject.

It is the most satisfactory of the moderate-sized books that the reviewer has encountered in the English language.

W. B. L.

**Serology of Nervous and Mental Diseases**—By D. M. Kaplan, M. D., Director of Clinical and Research Laboratories of the Neurological Institute, New York City. Octavo of 346 pages, illustrated. Philadelphia and London. W. B. Saunders Co., 1914. Cloth, \$3.50 net.

As Doctor Kaplan states in his preface, there is no American work covering the subject of serology in nervous and mental diseases and we might add that the English language is as yet not any too richly supplied along this line. This work will go far towards supplying this defi-

ciency, for the author is able to give us the benefit of his rich experience from both the Montefiore Home and from the Neurological Institute. The first portion of the work is taken up with Technology, under which the spinal fluid, its method of withdrawal, physical, chemical and cytological characteristics are studied at length. Serology is then taken up somewhat in detail and Doctor Kaplan's conservation on the use of the Wassermann reaction is to be highly recommended. He describes the preparation of the different reagents used in the test and here and there mentions his own findings in details that only the serum worker can learn by and through personal experience; e. g., the fact that inactivation of amboceptor is useless, even though recommended in all books as a necessity. He does not believe in the "Auswertungs Methode" of Hauptmann, i. e., the use of spinal fluid in higher doses, even up to 1 cc., in performing the Wassermann test. His view as to the Wassermann can probably be summed up better in his own words: "The chief function of the laboratory worker is not so much to detect every syphilitic, but to protect the non-luetic individual from a wrong diagnosis and useless treatment. It should be the duty of every serologist to do his utmost to secure results that are characteristic of the unequivocal positive Wassermann and he should consider himself as expert only when the number of positive results on non-luetic sera approaches the zero mark and not when his reports on positive material approach the 100 per cent efficiency mark. In part two, the serology of nervous and mental diseases of non-luetic etiology are taken up; after which those of luetic origin are discussed in detail. By means of the serum and spinal fluid Wassermann reaction, the globulin test, pleocytosis and Fehling's reduction the author feels that he can, in most cases differentiate between tabes, cerebrospinal lues and tabo-paresis or paresis. Moreover, he classifies them more rationally than Plant and others have succeeded in doing. From his present experience he feels that the Lange Gold Chlorid test in paresis is almost characteristic of the disease; especially if the other serological reactions are considered at the same time. With it he has been able to make a correct prognosis on several cases sometime before other evidences of degeneration had set in. He also lays great stress on the "Wassermann-fast tabes" as an evidence of beginning paresis. Kaplan places especial emphasis on the serology of early lues and in this connection allow us to quote him once more: "If the phophylactic treatment of syphilitic diseases of the nervous system is ever to become a certainty, it will have to be introduced by the syphilologist or the genito-urinary specialist who, as a rule, sees such cases first. With this aim in view it will be just as necessary for these physicians to acquaint themselves with the various serologic manifestations of lues, particularly of early lues of the nervous system, as it is obligatory for the neurologist to know the changes that occur in the cerebrospinal fluid." The last portion of the book is devoted to the therapeutic use of Salvarsan and the treatment of syphilis of the nervous system. With most of his advice here we would agree, though we feel that he does not lay enough stress on the value of the Hydrargyrum. This is speaking of syphilis in general and in our estimation Neosalvarsan is a drug that we can very well dispense with. It is by no means so strong as Salvarsan, it is very easily decomposed and there is too much of a tendency for patients to take a "shot of Neo" in the arm, because the physician can so easily prepare it, and then stop treatment. Later the disease reappears more malignantly than ever. Doctor Kaplan makes the interesting observation that the blood of 90 per cent of allluetics has a low amino (N. H.<sub>2</sub>) nitrogen content and it will be worth while to follow this up and find if as he believes the radicle has been taken up by the Treponema Pallida. The book is to be recommended and should be read by all whether specialist or general practitioner and especially by that physician who wishes to keep up-to-date. The printing is easily read, the illustrations are excellent and only one mistake was noted, on page 176, line 18, where the letter "s" was omitted from the word "syphilis."

H. N. C.



## ACKNOWLEDGMENTS

**Practical Hormone Therapy**—A Manual of Organotherapy for General Practitioners—By Henry R. Harrower, M. D.; Sometime Professor of Clinical Diagnosis, Loyola University, Chicago; Fellow of the Royal Society of Medicine; Fellow of the American Medical Association. With Foreword by Professor Dr. Arthur Biedl, Vienna. Paul B. Hoeber, New York, 1914.

**Recreations of a Physician**—By A. Stuart M. Chisholm, author of "The Independence of Chile." G. P. Putnam's Sons, New York and London, 1914. Price, \$2.00.

**The Ophthalmic Year Book, Volume X**—Containing a digest of the literature of ophthalmology for the year 1913. Edited by Edward Jackson, M. D., Professor of Ophthalmology in the University of Colorado; assisted by Theodore B. Schneideman, M. D., of Philadelphia; William Zentmayer, M. D., of Philadelphia; William H. Crisp, M. D., of Denver; Casey A. Wood, M. D., of Chicago; Wendell Reber, M. D., of Philadelphia; Harry S. Gradle, M. D., of Chicago; Robert Henry Elliot, M. D., of London; Hugo W. Aufm-wasser, M. D., of Denver; Meyer Wiener, M. D., of St. Louis, and Will Walter, M. D., of Chicago. Illustrated. Herrick Book and Stationery Company, Denver, Colorado, 1914.

**A History of Laryngology and Rhinology**—By Jonathan Wright, M. D., Director of the Department of Laboratories, New York Post-Graduate Medical School and Hospital. Second Edition, Revised and Enlarged. Lea & Febiger, Philadelphia and New York, 1914.

**Guiding Principles in Surgical Practice**—By Frederick-Emil Neef, B. S., M. L., M. D., Adjunct Professor of Gynecology, Fordham University School of Medicine, New York City. Sextodecimo, 180 pages. Surgery Publishing Company, New York. Price, cloth, \$1.50.

**Local Anaesthesia**—By Doctor Arthur Schlesinger, Berlin. Translated by F. S. Arnold, B. A., M. B., B. Ch. (Oxon). Illustrated. Rebman Company, New York. Price, \$1.50 net.

**Ambidexterity and Mental Culture**—By H. Macnaughton-Jones, M. D., M. Ch., Q. U. I., M. A. O. R. U. I. (Hon. Cau.), F. R. C. S. I. and Ed., Ex-University Professor, Queen's University, Ireland. Rebman Company, New York. Price, \$0.75.

**Diseases of Bones and Joints**—By Leonard W. Ely, M. D., Associate Professor of Surgery, Leland Stanford Junior University, San Francisco, California. Sextodecimo, 220 pages, 94 illustrations. Surgery Publishing Company, New York. Price, cloth, \$2.00.

**Manual of the Diseases of the Eye for Students and General Practitioners**—By Charles H. May, M. D., Attending Ophthalmic Surgeon to the Mt. Sinai Hospital, New York; Consulting Ophthalmologist to Bellevue Hospital, to the French Hospital, to the Red Cross Hospital and to the Italian Hospital, New York. Eighth edition, revised. Illustrated. William Wood & Company, New York, 1914. Price \$2.00 net.

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**Immunity in Measles.**—Charles S. Woods, Iowa City, Ia. (*Journal A. M. A.*, Sept. 5, 1914), calls attention to the apparent result of Hektoen's experiment in producing experimental measles as indicating beyond a doubt that measles may be transmitted by injecting the blood of a person having measles into another person in normal health. He relates an instance in which a woman in the eighth month of pregnancy contracted measles. The child, while *in utero*, must have had an ideal opportunity to acquire immunity against this disease. The child, however, now 7 years old, had an attack of measles this spring. This emphasizes the great difficulty of securing immunity and the power of the virus of measles to invade the human organism.

## MEDICAL NEWS

**Western Reserve Medical School—Changes in Title of Chair—**

John Pascal Sawyer, A.M., M.D., from professor of clinical medicine to be professor of clinical medicine and therapeutics; William Thomas Corlett, M.D., L. R. C. P., from professor of dermatology and syphilology to be senior professor of dermatology.

**Promotions**—Henry John Gerstenberger, M.D., from associate professor to be professor of pediatrics; Clyde Lottridge Cummer, Ph.B., M.D., from associate in clinical microscopy to be assistant professor of clinical microscopy; Richard Dexter, A. B., M.D., from instructor in medicine to associate in medicine; Oliver Arkenburgh Weber, A. M., M.D., from demonstrator of surgery to be instructor in surgery; Henry Lindsay Sanford, A. B., M.D., from demonstrator of surgery to be instructor in genito-urinary surgery; William Theodore Miller, A. B., M.D., from demonstrator of obstetrics to be instructor in obstetrics; James Edward Cogan, M.D., from demonstrator of ophthalmology to be instructor in ophthalmology; Harold Newton Cole, Ph. B., M.D., from demonstrator of dermatology to be instructor in dermatology; Howard Lester Taylor, A. B., M.D., from demonstrator of medicine to be instructor in medicine.

**New Appointments**—Gaius E. Harmon, M.D., C. P. H., instructor in hygiene; Bradley Merrill Patten, A. B., A. M., Ph. D., instructor in histology and embryology.

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Doctor H. Flournoy, resident psychiatrist at the Henry Phipps Psychiatric Clinic of Johns Hopkins Hospital and a member of the medical reserves of the Swiss army, has left Baltimore to return to Switzerland, in answer to the call for reservists.

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**The Henry S. Denison Memorial Building**, for Medical Research at the University of Colorado, has now been made ready for use. It contains laboratories for research in bacteriology, pathology, physiology, chemistry and clinical methods.

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Doctor William H. Welch, of the Johns Hopkins University, president of the National Academy of Sciences, is among the large number of American men of science detained on the continent by the war.

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Doctor George M. Parker, well known New York Psychiatrist, is now established in his new offices at 23 East 77th street, New York City.

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**Travel Study Club of American Physicians**—"The Travel Study Club of American Physicians, which made a successful study tour of Europe last year, has completed the plans for its 1915 study tour to the A. M. A. meeting in San Francisco, Honolulu, Japan, the Philippines, China, with optional return via Siberia and Europe, or via Canada. This being the first party of American physicians ever visiting the Far East and the new possessions of the United States, a most cordial welcome can be expected by authorities and members of the medical profession. The Travel Study Club would like to make its enterprise as representative as possible and asks all those interested to communicate with the Secretary, Doctor Richard Kovacs, 236 East 69th Street, New York."

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**Mississippi Valley Tuberculosis Conference**—The first sectional conference on tuberculosis for the states of the Mississippi Valley will be held in St. Louis, Mo., October 6, 7 and 8. The National Association for the Study and Prevention of Tuberculosis is arranging for similar conferences in other parts of the country. The Mississippi Valley Conference is held under the auspices of the National Tuberculosis Secretaries' Association and is especially for active workers in the anti-tuberculosis campaign, secretaries, sanatoria directors and public health nurses.



**Sanatorium for Urological Surgery**—The Bremerman Sanatorium (Inc.) has been organized for the purpose of erecting at Potash Sulphur Springs, Lawrence, Arkansas, the only institution in America devoted exclusively to Urological Surgery.

This building will be of fire-proof construction and modern in every detail; the plans being made by most prominent hospital architects. There will be a capacity of one hundred beds; every modern diagnostic method will be employed and the plans are for the erection of the finest institution of its kind in the world.

The consulting staff includes the following: John B. Murphy, Chicago; M. Milton Portis, Chicago; H. W. Soper, St. Louis; Albert MaCay, Portland; Lewis C. Boshier, Richmond; Oliver Lyons, Denver; Frederick W. Robbins, Detroit; G. Shearman Peterkin, Seattle; Walter Barnes, Chicago; Bransford Lewis, St. Louis; E. C. Mark, Kansas City; Louis Frank, Louisville; Paul Pilcher, Brooklyn; James A. Gardner, Buffalo; Winfield Ayers, New York City; Granville MacGowan, Los Angeles.

Lewis Wine Bremerman, of Chicago, will be surgeon-in-chief. Construction will begin in the near future and pushed to completion as rapidly as possible.

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**The British Government** has appointed a committee to consider questions in relation to the supply of drugs as affected by the war. The members of the committee are: Doctor J. Smith Whitaker, Sir Thomas Barlow, Sir Lauder Brunton, Doctor A. Cox, Professor A. R. Cushny, Doctor E. Rowland Fothergill, Doctor B. A. Richmond, Doctor F. J. Smith, Doctor W. Hale White, with Doctor E. W. Adams as secretary.

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**Several Citizens of Toronto** have agreed to contribute \$15,000 for five years to enable the University of Toronto to increase its research work.

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**The Paris Academy of Sciences** has awarded a prize of \$600 to Doctor H. Vincent, for his work on typhoid fever.

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**Doctor Ewald Hering**, professor of physiology at Leipzig, celebrated on August 5 his 80th birthday.

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**Fifth Annual Meeting of The American Association for Study and Prevention of Infant Mortality**—The fifth annual meeting of the association will be held in Boston November 12-14, 1914. The program will include sessions arranged by the Committees on Nursing and Social Work, Pediatrics, Vital and Social Statistics, Obstetrics, and Public School Education. The subjects to be discussed will include Prenatal Care, The Need for Increased and Improved Maternity Hospital Service, Institutional Mortality, Continuation Schools of Home-Making. The Session on Nursing and Social Work and the Joint Session on Pediatrics and Vital and Social Statistics will be held at the Harvard Medical School. All other sessions will be held at the Copley Plaza Hotel. Special clinics will be held on the opening day of the meeting at the Harvard Medical School and elsewhere, the exact time and place to be announced later. An exhibit will be held in connection with the meeting. The Chairman of the Committee on Local Arrangements is Doctor Hugh Cabot, 87 Marlboro Street, Boston, Mass. Further information or circulars in regard to the work of the association can be secured from the Executive Secretary, 1211 Cathedral Street, Baltimore, Md.

**Provisional Schedule**—Thursday, November 12. Morning: 10 A. M., Executive Committee meeting; 11 A. M., annual meeting of the Board of Directors. The Committee on Clinics is arranging for a series of clinics which will be held during the morning at the Harvard Medical School, at the Children's Hospital and elsewhere. Clinics for well babies will be held at the stations of the Boston Milk and Baby Hygiene Association. 12:45 P. M., complimentary luncheon for members of the Association at the Children's Hospital. Afternoon: Place, Harvard Medical School. 2-4 P. M., session on Nursing and Social Work; 4-6 P. M., Joint

Session Pediatrics and Vital and Social Statistics. Night: Place, Copley Plaza Hotel. 8:30 P. M., general session; address by the President, Doctor J. Whitridge Williams, followed by an informal reception. Friday, November 13. Place, Copley Plaza Hotel.—Morning: 9:30 A. M., annual business meeting of the association; 10:30 A. M., reports of affiliated societies. Afternoon: 2-4 P. M., session in obstetrics. Saturday, November 14. Place, Copley Plaza Hotel. Morning: 9:30 A. M., business meeting of the association; report of committee on resolutions; 10:30 A. M., session on Public School Education. The hours for meetings are subject to change.

Nursing and Social Work—Thursday, November 12, 2 P. M., Harvard Medical School. Committee—Chairman, Miss Mary Beard, Director, Instructive District Nursing Association, Boston; Secretary, Miss Alice M. Cheney, Social Service Department, Peter Bent Brigham Hospital, Boston; Miss Yssabelle Waters, Henry Street Settlement, New York City; Miss Elsie Burks, Children's Memorial Hospital, Chicago; Miss Alice Hall, Head of Baby Welfare Work, District Nursing Association, Providence.

The period of highest infant mortality is shown to be within the first month of life. Add to this large mortality the number of still-births, and we have a measure full and overflowing of the unsuccessful efforts of unaided motherhood. Not only is this a loss of potential energy in the baby, but also the cause of maternal waste, suffering and disappointment. Prenatal care is proved to be an efficient means for the conservation of at least half of this present infant loss, and is probably an even greater saving to the mother. Prenatal care is also the starting point of the practical education of the mother for the intelligent care of the infant and the child. For these reasons prenatal care is rightly receiving the earnest thought, and should receive the bountiful support of the men and women of the world. In 1911 our President, Doctor Williams, gave us the results of a careful study of the shortcomings, the duty, the difficulties and the responsibilities of the medical schools in the teaching and training of competent obstetricians to care for all women in the perils of childbirth. This fundamental study is bearing fruit. It seems now to be fitting and to offer the most profitable field for infant conservation to make a study of the various means and methods available to give all prospective mothers the comforts, the benefits and the safeguards of the best medical knowledge available during this vital period of development. The direct application of this knowledge must be largely through the trained nurse. This section has, therefore, made prenatal care its subject for the 1914 meeting, with confidence of abundant results to the conservation of infant life and maternal strength.

The following papers will be presented: 1. The Resources for Giving Prenatal Care, by A. B. Emmons, 2d, M. D., Boston, Mass. 2. The Growth of Prenatal Work in This Country, by Mrs. Max West of the Federal Children's Bureau, Washington, D. C.

The discussion will be opened by Miss Fannie F. Clement, Superintendent American Red Cross, Town and Country Service, Washington D. C. Other names will be announced later. The committee is making a preliminary study of the needs of young children after they leave the care of the baby conference nurse and before they pass into the hands of the school nurse. A round-table conference will be held for the discussion of the results of this study and for other practical problems, under the direction of Miss Alice Hall, head of Baby Welfare Work, Providence, R. I.

### Joint Session

Pediatrics and Vital and Social Statistics—Thursday, November 12, 4 P. M.; Harvard Medical School. Chairman, Doctor Henry L. K. Shaw, Albany.

Committees—Pediatrics—Chairman, Doctor H. L. K. Shaw, Albany; Doctor Godfrey R. Pisek, New York City; Doctor Henry I. Bowditch, Boston; Doctor John Ruhrah, Baltimore; Doctor Clifford G. Grulee, Chi-



cago; Doctor Kate C. Mead, Middletown; Doctor L. E. La Fetra, New York City; Doctor Philip Van Ingen, New York City; Doctor L. T. Royster, Norfolk.

**Vital and Social Statistics**—Chairman, Doctor Wm. C. Woodward, Washington; Miss Ella C. Babbitt, New York City; Doctor S. Josephine Baker, New York City; Doctor W. H. Davis, Dorchester; Doctor Oscar Dowling, New Orleans; Mr. Homer Folks, New York City; Mr. Sherman C. Kingsley, Chicago; Miss Julia C. Lathrop, Washington; Doctor J. W. McCullough, Toronto; Doctor Helen MacMurchy, Toronto; Doctor Pelletier, Montreal; Doctor W. S. Rankin, Raleigh; Mr. Robert W. Wallace, Albany; Doctor Cressy L. Wilbur, Albany; Doctor R. E. Wodehouse, Ontario.

The following papers will be presented: "Are Institutions for Infants Necessary?," Doctor Henry D. Chapin, New York City; "Care of Institutional Infants Outside of Institutions," Doctor J. H. Mason Knox, Jr., Baltimore; "Foreign Methods in Institutional Care for Infants," Doctor H. J. Gerstenberger, Cleveland; "A Plea for the Wider Use of Wet Nurses in Infant Institutions," Doctor Frank S. Churchill, Chicago. The Committee on Vital and Social Statistics will present a preliminary report on Institutional Mortality and Morbidity.

**Obstetrics**—Friday, November 13, 2 P. M., Copley Plaza Hotel—Committee—Chairman, Doctor Mary Sherwood, Baltimore; Secretary, Doctor James Lincoln Huntington, Boston; Doctor Adelaide Brown, San Francisco; Doctor Louis Burckhardt, Indianapolis; Doctor J. E. Cannaday, Charleston, W. Va.; Doctor Joseph B. De Lee, Chicago; Doctor Robert L. De Normandie, Boston; Doctor Arthur B. Emmons, 2nd, Boston; Doctor John S. Fulton, Baltimore; Doctor G. W. Goler, Rochester; Doctor Caroline Hedger, Chicago; Doctor George W. Kosmak, New York City; Doctor Fred E. Leavitt, St. Paul; Doctor Margaret Long, Denver; Doctor T. W. Newman, New Orleans; Doctor John L. Norris, Washington, D. C.; Mrs. William Lowell Putnam, Boston; Miss Elizabeth Shaver, Louisville; Doctor J. Morris Slemmons, San Francisco; Doctor Ellen A. Stone, Providence; Doctor Louis Stricker, Cincinnati; Doctor George W. Webster, Chicago; Doctor Lilian Welsh, Baltimore; Doctor J. Whitridge Williams, Baltimore; Doctor Ira S. Wile, New York City; Doctor William C. Woodward, Washington, D. C.; Doctor Paul G. Woolley, Cincinnati; Doctor Charles E. Ziegler, Pittsburgh.

Central Theme: "A Plea for Increased and Improved Maternity Hospital Service."

The following papers will be presented: 1. "Teaching Obstetrics, Necessary Equipment," Dr. W. W. Chipman, Montreal. 2. "The Relation of Gynecological Surgery to Bad Obstetrics," Doctor Edward Reynolds, Boston. 3. "The Need of Hospitals for Maternity Surgical Cases," Doctor E. P. Davis, Philadelphia. The work of local investigations will be continued by the various subcommittees.

**Public School Education for Prevention of Infant Mortality**—Saturday, November 14, 10:30 A. M., Copley Plaza Hotel. Committee—Chairman, Doctor Helen C. Putnam, Providence; Secretary, Professor Abby L. Marlatt, University of Wisconsin; Doctor Edna D. Day, University of Kansas; Dean Sarah Louise Arnold, Simmons College; Mrs. Ellor Carlisle Ripley, Assistant Superintendent Public Schools, Boston; Miss F. G. Curtis, Boston School Committee.

Topic—Continuation Schools and Classes—Doctor David Snedden, Massachusetts Commissioner of Education: "Some Possibilities of Public Schools in Reducing Infant Mortality."

Discussion opened by Mrs. Eva W. White of the Massachusetts Board of Education, and Doctor Dorothy Reed-Mendenhall of the Community Welfare Extension Work, University of Wisconsin.

Report of round table on "Elementary school basis for continuation and high school instruction," read by the Secretary.

Doctor Joel E. Goldthwait will open the discussion with "Effects on children of carrying burdens," based on X-ray and other studies. Schools stimulating home labors, including sweeping, mopping, scrubbing floors, or tending furnaces and babies, must consider physiologic and anatomic conditions. Research increasingly traces adult ills, including tuberculosis, back to childhood and infancy.

The committee co-operates in establishing on a substantial basis effective instruction to conserve infant life, the phases of instruction to be adapted to the ages when each counts for most, and can therefore be given with the greatest economy of effort and money. The topics have been:

1910—Healthy parents, right customs and wholesome environment being essential factors in preventing infant mortality, how are normal institutions fitting teachers to establish through public schools better practices in hygiene and sanitation and higher ideals of parenthood?

1911—Since the great majority of children leave school before 16 years of age, and there is a considerable interval before marriage, should school boards create Continuation Schools of Home-Making where girls (women) with grammar school education (more or less) can receive, even several years after leaving school, free instruction in housewifery, care of children and related matters, thus bringing instruction near the time when it is needed for use?

1912—Education of youths and men through continuation schools and classes, including those primarily intended to increase wage-earning capacity, in responsibilities and duties of home-making, e. g., elements of house planning and sanitation, of eugenics, first aid, contagion and disinfection, repairing furnishings and clothing; of pure food and dietary principles, home gardening and beautifying.

1913—Methods and vocational objectives in teaching care of infants to girls (women) of 16 years and over in continuation schools and classes.

Correspondence with all State Commissioners of education, many city superintendents and special instructors, accompanied by reprints of the sessions, has called the matter to their attention, as also have contributions to leading educational journals. Several university, college and high school courses within these four years have added the subject of infancy or care of children, a few of them doing excellent practical and extension work. Ideals are growing steadily toward education for parental duties.

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## DEATHS

William I. Wood, M. D., Wooster University, Cleveland, Ohio, 1888; died at the German Hospital, Cleveland, on Friday August 7, 1914, following an operation for appendicitis. Doctor Wood was a prominent citizen of Medina and Seville, where he had recently taken up his residence, and was aged 56.

Cassius M. Overhulse, M. D., Starling Memorial College, Columbus, Ohio, 1892; died at his home in Holgate, Ohio, August 26, aged 56.

Robert J. A. Irwin, M. D., Western Reserve University, Cleveland, Ohio, 1884; of Pittsburgh, Pa.; died at his home September 1.

Samuel Robinson Fife, M. D., Western Reserve University, Cleveland, Ohio, 1862; for more than half a century a practitioner of West Elizabeth, Pa.; for one term postmaster; and a school director for more than 43 years; died at his home in West Elizabeth, September 3, aged 81.



# The Cleveland Medical Journal

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## ON SYMPODIA\*

By N. WILLIAM INGALLS, M.D., the Anatomical Department of  
Western Reserve University, Cleveland, Ohio.

The monsters at present collected together in the class of Sympodia form a quite sharply defined group, characterized most conspicuously, as the name implies, by a fusion of the lower extremities. It is to this possession of an apparently single limb to which the class owes its older and inaccurate designations of Monopodia (one-footed) and Monomeri (one-limbed), as well as the more picturesque names of Sirens, Sirenornelia or Sireniform monsters.

Since no reference to this type of malformation is found in Aristotle, it has been supposed that the credit of their first mention belongs to Pliny, who called them Monocoli (one-limbed) and Sciapodae. But the latter term, Skiapodes, was used long before by Aristophanes in *The Birds*, and it is furthermore scarcely possible that such a striking type of monster should have remained unobserved or passed unnoticed among the many forms which were recorded and which furnished material for the important arts of Fetumancy and Teratoscopy. The Skiapodes<sup>1</sup>, or shadow-footed, were a fabulous folk who dwelt in the hottest parts of Libya, and who were possessed of immense feet which they were wont to use to screen themselves from the rays of the sun as they lay on their backs during the heat of the day. Figure 3 shows how admirably certain forms of sympodia would be adapted to a mode of life perhaps not very different from that of the Lotus-eaters. Reference to what was doubtless this same condition is found in the literature of the Norsemen, where we read of a child “\* \* \* whose heels are in the place of its toes, \* \* \* with the calves of the legs turning forward.”

But we must come down well into modern times before

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\* Presented, somewhat more briefly, before The Cleveland Academy of Medicine, Oct. 16, 1914.

1 Cf. σκίλουρος, shadow-tail, squirrel.

there is found anything approaching a trustworthy account of this or indeed of any type of monster. The teratological writers of the sixteenth, seventeenth and early eighteenth centuries furnish us with a certain number of surprisingly faithful and accurate representations of well recognized forms of terata, among them examples of sympodia, yet side by side with these we see the most hideous and fanciful forms, and their absurd or repugnant attempts at explanation show clearly that their actual knowledge did not surpass that of the Greeks and Romans. Nearly two hundred years in advance of his time, William Harvey, in the middle of the seventeenth century, was the first to attempt a rational explanation of monsters and that upon an embryological basis, and with the anatomical researches of Haller, a hundred years later, a real science of Teratology was beginning to emerge from the stygian darkness which had so long enthralled it.

It was not until 1836 that I. Geoffrey St. Hilaire first separated and defined more clearly the various grades of sympodia and drew attention to the fact that the term monopodia is inappropriate, since there are present parts, at least, of two extremities. His classification, like that of later writers, was based upon the peculiarities exhibited by the fused lower limbs. He recognized three groups, Symèle<sup>1</sup>, Uromèle<sup>2</sup>, and Sirénomèle<sup>3</sup>, which correspond with the designations introduced some years later by Förster. The terminology of Förster, which we shall follow, has the advantage of being more descriptive in character and is in more general use in English and German literature. Under the generic term of Sympus<sup>4</sup> or Sympodia, he distinguished the same varieties depending upon the development of the foot; they are Sympus dipus, Sympus monopus, and Sympus apus.

Sympodial or Symelian monsters are relatively rare, constituting roughly about 1% of all monsters and out of this small number the highest grade of the malformation, sympus apus, is the most common. The condition seems to be very

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1 σύν, with, together, and μέλος, limb.

2 οὐρά, tail.

3 Σειρήν, a Siren.

4 πούς, ποδός, foot.



rarely encountered in animals but has been observed in a calf. By a curious chance, the three examples of sympodia in the Museum of Anatomy represent quite typically these three groups, while the skeleton of the pelvis and extremities of a fourth case belongs to that form which is most rarely encountered, *sympus dipus*.

Before entering upon a discussion of the distinctive features exhibited in each of these three groups, we may call attention briefly to those malformations which are quite constantly found in all.

The fusion already alluded to as giving rise to the characteristic appearance of these monsters involves the two halves of the pelvis as well as the extremities, and occurs in both cases in the soft parts as well as in the skeletal elements. This fusion, as will be seen later, can be best explained as secondary to defects in the more caudal or post-axial parts of the pelvis and limbs and it is along the caudal limits of the remaining, uninjured structures that fusion takes place. This occurs in such a manner that corresponding parts on either side meet in the median line and unite; an example of the famous law of St. Hilaire or the "*loi d'affinité du soi pour soi*." The limbs are united by what, in the normal position, are their lateral borders, *i. e.*, the lateral aspect of the thigh, the fibular side of the leg and the outer border of the foot. The necessary result is that the flexor surface of the extremity is directed forward, as are also the heel and the sole of the foot, the great toes are on the outside of the misshapen foot and the patellae are located behind or behind and on the outside. To put the normal limb in the same position it would be necessary to rotate it outward through  $180^{\circ}$ . As a result of this position the leg can be flexed ventrally upon the thigh and this in the same manner upon the trunk, giving the peculiar appearance seen in Fig. 3. There is, however, quite frequently only very limited motion possible in the various joints, since the bones on the two sides may be bound firmly together, or the axes of rotation in the two joints form such an angle with each other that they mutually prevent any considerable amount of movement. The pelvis is never properly developed, being small and its cavity very diminutive or entirely wanting. It is usually but loosely attached to the vertebral column, partly on account of the rudimentary condition of the sacrum, and it is this faulty connection, often only ligamentous, which explains the great

degree of movement possible between the trunk and extremity, for this movement takes place between the pelvis and spine and not between the thigh and the pelvis. The spine often shows numerical anomalies or faulty development of its individual elements as well. The number of ribs may be either increased or decreased, on one or both sides.

Although the union of the extremities is the most striking feature in these monsters, there are in addition other and more serious defects which are as constantly present since they share a common cause. These are for the most part visceral. The terminal, later pelvic portions of the digestive and urogenital system suffers most severely. Atresia ani et recti is almost invariably present, and there is frequently occlusion or interruption of the gut higher up, often in the sigmoid. The external genitalia are practically never developed; ovaries and testes can often be recognized, frequently in some atypical location, but the remaining internal reproductive organs are always markedly malformed, if not entirely wanting. The urethra is almost always absent, not uncommonly the bladder also. Although the ureters and kidneys may escape to a certain extent, they are usually malformed in some respect; as regards the kidneys, they are often small, irregular in shape, cystic, or they may be converted into membranous sacs as if by retained excretion, or one or both may be absent. Other minor visceral anomalies are constantly encountered but do not require enumerating, and we shall simply mention the absence of the adrenals in a few cases and more rarely the absence of the pancreas.

Perhaps the most constant anomaly in Sympodia is the presence of but two vessels in the umbilical cord, one vein and one artery, but the latter is not one of the two umbilical arteries normally found but is an omphalomesenteric artery, *i. e.*, an artery of the yolk-sac. As such, it takes its origin directly from the abdominal aorta or it may appear as a continuation of the superior mesenteric. The hypogastric, or internal iliac arteries, from which arise normally the umbilical arteries, are always very small on account of the small pelvic cavity and the state of development of the viscera, or they may be wanting. A small tail-like appendage is curiously common, being attached dorsally about the level of the pelvis; it is not a true tail, however, since it contains no part of the vertebral column and its significance is problematical. Many other unrelated defects may be



present in other parts of the body, a common finding in all forms of terata; frequently in the head, as anencephaly, hare-lip, cleft palate and deformities of the external ear; or in the upper extremity, as club-hand, finger defects and absence of radius.

In view of the visceral conditions just noted it will be evident that a discussion of the viability of these monsters is hardly called for. The majority are still-born, many even before term, while a few have survived for a number of hours. In one case, however, death did not occur until the eighth day, but the case in question was an unusually mild form of the lowest grade of sympodia, *sympus dipus*.

The present consideration of the different varieties of *sympus* will concern itself particularly with the structure of the extremity. It will not be necessary to comment further upon the condition of the abdominal organs since the findings here are



FIG. 1.

*Sympus dipus*. The head had been previously removed, the abdomen opened and the extremity partially dissected.



FIG. 2.

Radiograph of the same. The right fibula is behind the right tibia. Cf. text.

more uniform; there is not the gradual gradation of one form into another as seen in the limbs; neither is there such a strict correlation in the degree of visceral and skeletal defects, but in general the severest grades of malformation in each are associated.

*Symphus dipus* (Symèle), Figs. 1 and 2, represents the mildest grade, the one in which the defect is least and the limbs most complete. It is characterized by the presence of ten toes. The pelvis is most complete in this type and the lower end of the spine most perfect. The two ischia are fused to a varying extent, or even the descending rami of the pubes as well, and with these changes begin the narrowing and shrinking of the pelvis. This fusion of the ischia approximates the acetabula in addition to shifting them more to the dorsal aspect of the pelvis, and opens out, as it were, the two ilia into a frontal plane. Two femora are present, the heads near together and directed more or less forward depending on the relations of the acetabula. Their lower ends are close together and the patellae lies on the lateral or dorso-lateral aspect of the limb. Two tibiae are found in the leg and between them the two corresponding fibulae. The union in the feet is by the tarsal bones, there being ten separate toes, or only the two calcanei are united. The muscles of the limb, and with them the vessels and nerves, are for the most part present. The small external rotators of the thigh, some of the flexors of the knee and extensors of the foot may be poorly developed, fused in the median line or absent.



FIG. 3.

*Symphus monopus* (heptadactylos). Entire specimen; the position of the extremity is characteristic, the caudal appendage can be seen just below the right hand.



FIG. 4.

Radiograph of the same. The extremity is straightened out. Cf. text.



In the specimen shown in Figs. 1 and 2, the ribs and most of the vertebrae are normal; the sacrum, however, is small and imperfectly formed. Since only the ossified parts can be made out distinctly in the radiographs, it is not possible to say to what extent abnormal union by cartilage may be present. The ilia are distinct, the ischia and pubes are united, the latter probably only by cartilage, while the femora, tibiae and fibulae are all separate. In the tarsus only the centers for the calcanei and astraguli are formed, and these are not united; even a cartilaginous union of the former seems doubtful in this case.

*Sympus monopus* (Uromèle), Figs. 3 and 4, has a wide range of variation if we include, as seems best, forms having from one to nine toes, and the findings will vary accordingly from the slight malformations of *sympus dipus* to the extensive defects of *sympus apus*. The pelvis in the milder grades, *i. e.*, in those with the greater number of toes, may present evidences of fusion only in the ischia and pubes, but there is usually in the higher grades a fusion of the ilia also, and since this fusion is due to defects in the various parts of the pelvis there is a progressive decrease in size of the pelvis and particularly of its cavity, the union of the ischia and pubic rami leading to a more or less complete closure of the contracted cavity. The acetabula are more closely approximated and more dorsally placed than in the preceding form or they are represented by a single cavity which may show traces of its double origin. The femora may be separated throughout or united by their diaphyses, or either the upper or lower end only is distinctly doubled. Two patellae are usually found and are more dorsally placed than in *sympus dipus*. Two tibia are present in case the lower end of the femur is double or partial fusion may occur. The fibulae may be absent, or if present may be represented by a single bone situated between and behind the tibiae. The foot is subject to the most variation. The reduction and fusion take place along the outer border of the foot and may involve only the calcanei and cuboids and the fifth metatarsals and phalanges, or in more marked cases the tarsal bones are diminished in number and atypical in form, the number of toes likewise reduced. The lateral digits have two phalanges, since they are the great toes, while the intermediate ones have three phalanges. Corresponding defects and fusions are noted in the nerves and muscles. The sacral plexus is poorly developed, many branches are absent or the two sciatic

nerves may unite to form a single trunk. The muscles of the fibular side of the leg and foot are commonly deficient and fused, and the same applies to the flexors of the knee and the external rotators of the thigh, *i. e.*, particularly those muscles supplied by sacral and lower lumbar segments. The apparent outward rotation of the extremity varies directly with the degree of malformation and is most clearly shown by the location of the patellae.

In the heptadactylic monopus represented in Figs. 3 and 4, the vertebral and costal anomalies are more marked than in dipus. There are thirteen well developed ribs, while the first of the remaining four lumbar vertebrae which make up the rest of the spine has a small rib on the left side. There is no trace of a sacrum. The ilia are separate and apparently the pubes also, but the ischia are completely fused. The femora are united in their proximal halves, divergent distally; between the tibiae is



FIG. 5.

Sympus apus. Extensive loss of the superficial layers of the epidermis, some maceration at birth.



FIG. 6.

Radiograph of the same. Cf. text.

placed the single fibula. In the tarsus there is a single center for the calcanei and two for the astraguli, while the seven metatarsals and phalanges have their usual centers.

Sympus apus (Sirénomèle), Figs. 5 and 6, represents the severest grade of sympodial deformity. It is the typical "siren"



or "mermaid fetus." The pelvis is very small and often devoid of cavity; there is usually but one acetabulum dorsally placed. The femur may be apparently single, its head corresponding with the condition of the acetabulum, single or partially doubled; its lower end may show two or three condyles, the central one of double origin. The one or two patellae are situated dorsal to the knee joint, which may be single or partially double. The only bone in the leg is a tibia, which tapers rapidly to a point; evidence of its origin from parts of two bones may be present at its enlarged proximal end. The musculature is most defective, often absent below the knee and many muscles are recognizable only from their nerve supply. The only remaining muscles may be the flexors and adductors of the thigh and the extensors of the knee, muscles supplied by upper lumbar segments. The gluteal muscles are often present, at least in part. The sacral nerves are all rudimentary or absent and even the lumbar plexus is not perfectly formed. Extensive malformations of the spine are very commonly found, especially in the lumbar and sacral regions.

There are very marked defects in the case of symplus apus which occurred in the practice of Doctor C. J. Albl, and which is shown in Figs. 5 and 6. There are present thirteen ribs and thirteen thoracic vertebrae, while beyond these are found six vertebrae, the last malformed and possibly representing a part of the sacrum, which is otherwise absent. The pelvis is quite unrecognizable, except from its location; the large mass is probably the fused ilia; the two small bony centers on the right side may represent parts of the ischia and pubes. The upper end of the femur, which is unusually small, lies close to these two bony nodules; its distal end is very broad and a single center of ossification has appeared in this epiphysis. The obliquity of the femur is probably due to a rotation of the pelvis. The distal segment of the extremity contains but one bone, a short pointed tibia with a bony center in its proximal epiphysis. Both femur and tibia are of bilateral origin.

There is at present no entirely satisfactory explanation of sympodia. We can speak with some degree of certainty regarding the formal genesis of many types of monster, *i. e.*, as to how they might or do arise, although we may be quite in the dark as to their causal genesis, in other words, as to why they occur. Even the formal genesis of sympodia is by no means clear, and out of the many agencies which have been invoked to explain

the condition, none have been able to meet all the demands which must be put upon them. To be explained, and naturally by a minimal number of causes, are the above noted visceral defects and malformation, the defects and fusions in the limbs and pelvis and probably also the presence of a single artery in the cord, an omphalo-mesenteric artery.

The first attempts at explanation were made by Dareste, who observed that in developing chicks an abnormal narrowing of the tail-fold of the amnion may lead to a close dorsal approximation of the posterior limb-buds. He supposed that the pressure thus exerted would not only lead to an intimate union of the growing limbs, but would also entail an arrest of development of the intermediate structures, whether bones, muscles, nerves or viscera. Although in all probability the amnion in man is not formed by folds but by a process of delamination, one could still conceive of its exerting a similar action. But unequivocal evidence of such widespread pressure is not forthcoming and the amniotic adhesions which might be expected are rarely found. The symmetry and "regular imperfection" which are so characteristic of these monsters can only be unfavorable to any mechanical theory of their origin. In spite of the difficulties involved many more recent writers have, in their extremity, sought refuge in the haven of amniotic aberrations. In order to explain the presence of one artery in the cord, an omphalo-mesenteric, it has been supposed that the primary defect is in the region of the body stalk and the adjacent posterior part of the embryo. Since the normal vascular channels in the body-stalk between the embryo and chorion are absent, their function is taken over by the vessels of the yolk-sac after the latter has formed an attachment to the chorion. It may be noted here that the same arterial anomaly has been observed in otherwise normal fetuses. Other investigators have sought an explanation in the arrested development of the allantois and the hind-gut.

The theory which seems most probable is that advanced by Bolk of Amsterdam. The diagrams in Fig. 7 may serve to illustrate his views. He assumes that there is a more or less extensive defect at the posterior end of the body, a failure of development of those segments which furnish material for the pelvis and lower limbs, due to an early arrest of segment formation. Associated with this is a non-development of the allantois and of the vessels in the body-stalk. The primary cause of this arrested



growth must be effective very early in development, and, excepting possibly certain types of parasitic monsters, the great majority of all severer malformations must be due to teratogenetic agencies, which, if they are not actually determined at fertilization or soon after, at least begin their malign operations in the first few weeks of embryonic life. Whatever may be the cause of the deficiency in the number of segments, we must suppose that it also produces disturbances in the developing viscera, but less typical and less constant since their segmental character is less marked. If we suppose that the formation of the primitive segments, in its progress caudad, stops at any given level, on account of some antecedent defect beyond this point, it will be evident that the last segments developed will form the posterior end of the embryo. Furthermore, these two terminal segments, a right and a left, will meet and unite in the median line along what, under normal conditions, would be their caudal borders. This for the simple reason that there is nothing beyond, *i. e.*, between them. The abnormal position of the segments in question, constituting the end of the embryo, enables them to grow out caudally in the long axis of the body instead of in a lateral direction to which they would be normally restricted. These profound changes undoubtedly occur long before the appearance of the posterior limb-buds, and since the limb-buds take their origin in part from the united terminal segments, they will be caught in the same process, and, instead of arising as two separate, laterally directed anlagen, will grow out posteriorly as a single median bud. The peculiar conditions which are thus brought about at the posterior end of the body may be compared with those observed at the opposite end, Cyclopia (Synopsia), due to defects in the anterior part of the central nervous system, and characterized by the presence of an apparently single or doubled eye.

As already pointed out, this so-called fusion takes place between corresponding structures on either side of the median line, but only between such structures as border immediately upon the defect. It must not be supposed that the bones, muscles, nerves, etc., belonging to the right and left sides of the pelvis and the right and left limbs come together in the mid-line and unite. The embryonic material, at this stage of development very small in amount and wholly undifferentiated, out of which will be formed certain structures of the right side, those bordering on the defect, lies close to the median line and is

directly continuous with the material destined to form the corresponding structures of the left side. Since the parts in question are unseparated at the beginning of their development, we find them in a fused condition at its close. In order to explain the peculiar outward rotation of the extremities, which was so baffling to earlier observers, it will be necessary to recall their early development. The limb-buds grow out at right angles to the mid-dorsal line and may be divided into cephalic and caudal halves by a plane passing through their long axes, perpendicular to the long axis of the embryo. These two halves of the limb-buds and the corresponding borders are, in relation to the axis of the bud, preaxial and postaxial. Within this bud the anlagen of the future constituent parts of the extremity are arranged in a definite manner. The muscles supplied by lumbar nerves develop from material along the preaxial border, those supplied by sacral nerves from material along the postaxial margin. The skeletal elements are so arranged that the fibula, outer tarsals, metatarsals and phalanges are postaxially placed. The primitive dorsal surface of the limb is the extensor surface, the ventral, the flexor. In the course of normal development the extremity is rotated inward, thus bringing the preaxial border, the side of the tibia and hallux, on the inside, the postaxial border on the outside, while the original dorsal, extensor surface becomes ventral. It follows from these primitive relations of the extremities that the loss of segments at the posterior end of the body will first affect the postaxial, sacral portion of the limb, and as the deficiency becomes more marked will gradually invade the preaxial or lumbar derivatives. The effect upon the developing extremities is necessarily twofold. First, there will be union in the median line, along the caudal, more postaxial border, of those portions of the limbs which have escaped the primary lesion, while the uninjured cephalic, or preaxial structures will occupy the lateral aspect of the fused extremities. There will be, secondly, on account of their union, an inability of the two halves to undergo their normal rotation, and they will, therefore, preserve in large part their primitive positions, *i. e.*, the flexor surfaces ventral.

The less extensive the skeletal fusion, however, the greater will be the freedom of the limbs to take up their natural position in inward rotation, and so in cases of *dipus* the patellae and toes may be lateral in position instead of dorsal, the fused heels mesial instead of ventral.



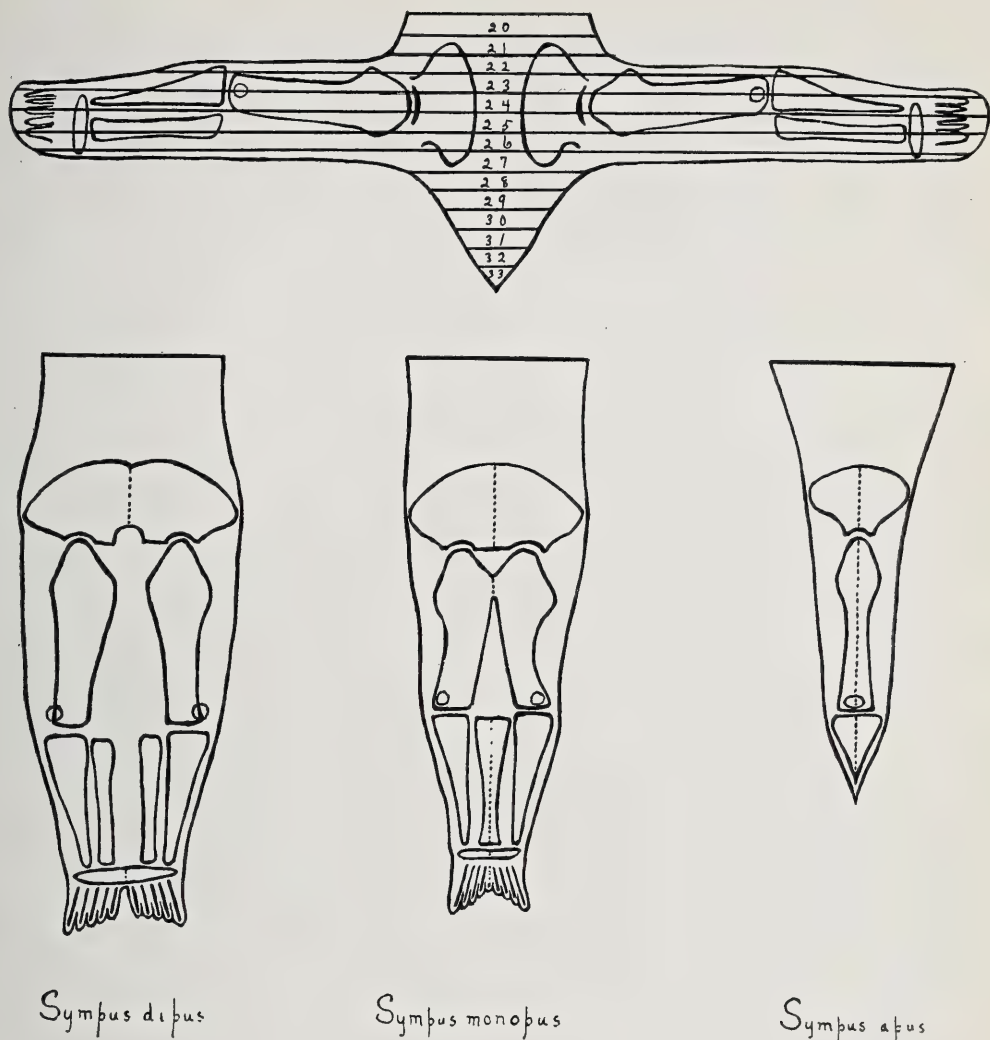


FIG. 7.

**Sympus formation.** In part from Bolk. For explanation see text. The dotted lines are lines of fusion; they are indicated only in the bones, but the whole middle line is a region of fusion, indeed is the only place where this occurs.

The upper diagram in Fig. 7 represents schematically the posterior part of the body with its segments; the bones of the pelvis and extremity are also shown in their relation to the segments from which they are formed and the muscles derived from these segments are attached to the corresponding parts of the various bones<sup>1</sup>. The parts are represented as seen from the dorsal side, and only the ilium and acetabulum are shown since the pubis and ischium are more ventrally placed, and of all three parts the ischium is the most caudal. The patella is represented by a circle at the lower end of the femur and the tarsus appears as a single mass. The position of the limbs is their original one, before any rotation has occurred. The numbers refer to the segments, the 21st being the 1st lumbar.

<sup>1</sup> This statement does not admit of application to all the muscles of the body.

To obtain the condition of symphysis dipus shown in the same figure, we have supposed that segment formation stopped with the 26th segment and that the parts already formed were swung into the median line caudally and united. The union of the two halves is only by pelvis and tarsus, and the centrally placed soft parts. The next higher grade of symphysis may be taken as due to arrested development in the next segment above, the 25th being the last one formed. In the monopus formation which thus results the acetabula are closer together, the femora are partially fused, the large, mesially placed fibula is of bilateral origin; the patellae are somewhat nearer the median line; in the foot the tarsus and the bones of the fifth digit are fused in like manner. The centrally placed musculature of dipus must obviously be reduced or wanting. An earlier arrest of development, *i. e.*, higher up, would have resulted in a monopus with more extensive deficiency and with a reduction in the number of toes. In the last form, symphysis apus, nothing is present beyond the 23rd segment; all the bones present are of double origin and below the knee only a small part of each tibia has been preserved, the single acetabulum is on the dorsal aspect of the small, deformed pelvis, the single patella is dorsal to the knee joint. The arrest of development need not coincide with the limits of any given segments, neither need it occur at the same level on the two sides, or the two limbs may not develop at exactly the same level, and thus arise the many gradations and frequently symmetrical forms. The findings in certain symphyseal monsters, however, indicate that they cannot be explained entirely by the sharp and definite defect which is postulated by Bolk. Certain modifications and qualifications will be necessary in many cases, without altering materially the principles or value of his theory.

It has been necessary in the preceding pages to speak rather figuratively of the fusion of various parts, for the reason that we are dealing with them in a fully developed condition. But we would again insist that actual union of even partially developed structures does not occur. What we describe at the end of development as a fusion, is already determined at its very beginning by a non-separation. We are obliged to speak in terms of the end-results because of our ignorance of their mode of development.

A union of the lower extremities also occurs in certain double monsters, as Ischiopagus and Iliothracopagus tripus, but



here there are involved the right and left limbs of two bodies, not the two limbs of a single body. A similar condition of the upper extremities (Symbrachius) is found only in Diplogagi and the fused arms are the right and left belonging to the two trunks. A form of symbrachius comparable with sympodia could hardly occur on account of the precocious development of the head.

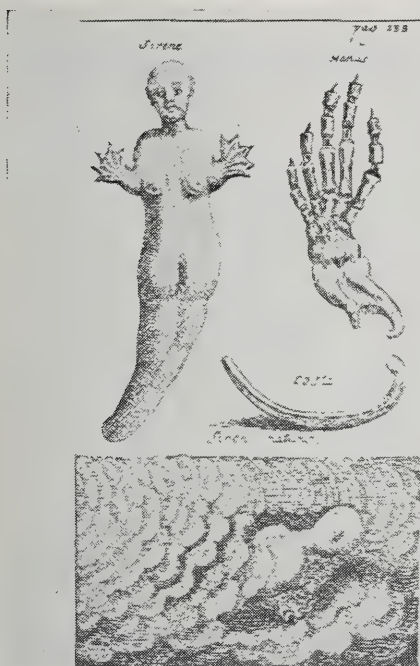


FIG. 8.  
Siren of Bartholinus, 1654.



FIG. 9.  
Sympus apus, from Licetus, 1665.

Many representations of sympodia are to be found in the older works on monsters, but almost all are cases of sympus apus, the most common form. We are indebted to Bartholinus (1654) for the original of Fig. 8, which shows the general form of the siren (phocomelic in this case), as well as the same individual in her natural environment. It may be recalled here that the original sirens of the *Odyssey*, who wasted their blandishments upon Ulysses and his companions, were not thus adapted to an aquatic life, but were rather terrestrial beings. On account of the unhappy fate which overtook the luckless traveller who passed too near their baleful, bone-strewn shores, they were early represented as having the upper parts like those of a woman, the lower like those of a bird. The sirens in whom the lower parts had assumed a fish-like form are of a later date, when they had become more comely and perhaps less cruel. Fig. 9 is from

Licetus (1665), and affords a very good example of symphus apus observed in 1553, but the meaning of the "cuspides" at the junction of trunk and extremity is not clear.

We may bring to a close this brief account of symphodia by reference to one of those fabled monsters which peopled in such hideous array the untutored fancy of bye-gone days. Once thought to be begotten of man, we now see in them the offspring of ignorance and superstition. It is easy to imagine that in the particular case in question, Fig. 10, the writer and perhaps also



FIG. 10.  
The Monster of Ravenna, from Schenk, 1609.

the artist had observed, or possibly had only heard of some form of symphodia. If one wishes a basis in fact for this bizarre creature we may suppose it to have been an example of symphus dipus or monopus, perchance a symmetrical, associated with some malformation of the upper extremities, possibly phocomelia. Serious comment on the other features presented by this weird being is hardly necessary, but it may be mentioned that in many of the older representations of symphodia the artist has felt called upon to provide his creations with external genitalia, and indeed the presence of the organs of both sexes, as seen in Fig. 10, is not without precedent, even in an otherwise normal body, as may be



seen in the enduring marble of many art collections.<sup>1</sup> The representations and significance of this monster, which first saw the light in Ravenna in Italy in 1511, are taken from one of the earliest treatises on teratology, that of Schenk, *Monstrorum Historia Mirabilis*, Francofurt, 1609. The substance of the following passage was taken by Schenk from earlier writers and it affords an amusing example of the application of the almost forgotten science of teratology. The Latin account may be rendered as follows:

"In Ravenna was born a monster having a horn on its head and wings, no arms, one foot like a bird of prey, an eye in its knee, of both sexes; in the middle of the breast a Y and the sign of a cross. Some have interpreted the horn as pride, the wings as levity and inconstancy of mind, the lack of arms as defect in good works, the clawed foot as rapine, usury and all manner of avarice, the single eye in the knee as a weakness of mind for earthly things, both sexes as sodomy; and on account of these deformities so Italy is vexed by hostile arms, but the King of France does this not in his own strength, but is only the scourge of God. Y in truth and X are signs of safety, for Y is the figure of virtue. Therefore if they return unto virtue and unto the cross of Christ, they shall have respite from these oppressions and tribulations, and rest, more to be desired, from their burdens."

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<sup>1</sup> Hermaphrodite de Velletri and the Borghese Hermaphrodite in the Louvre.

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**Pellagra in Minnesota.**—Deane R. Brengle, St. Paul (*Journal A. M. A.*, Oct. 3, 1914), says that up to the present time four cases of pellagra, in one man and three women, have been reported to the Minnesota State Board of Health. All ended fatally. He remarks that the discovery of at least three of the reported cases in the most important medical centers in this part of the Northwest (Minnesota and Rochester) is significant. It is commonly observed that the best diagnosticians live in such centers and their opportunity for knowing the possible extent of pellagra in the rural districts is limited. How many cases there may be in the smaller towns that have been overlooked by the physicians can only be guessed, especially where the definite cutaneous manifestations are obscure or absent. He reports a personal observation of pellagra in a native of Cuba, who, however, lived in this country since his fourth year. The case seems fairly typical and the patient was examined by many physicians in St. Paul and Minneapolis and none have questioned the diagnosis.

## PENDULOUS, PEDUNCULATED AND SESSILE TUBERCLES AND MASSES IN THE SEROUS CAVITIES IN MAN

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The occurrence of round and oval, pedunculated, pendulous, and sessile nodules and masses, often arranged in rows and sometimes "strung out" on bands of connective tissue, resembling strings of pearls, has been recognized in cattle for a considerable time. Virchow called the condition "perlsucht" and considered it a form of lymphosarcoma. For a time "perlsucht" was considered a distinct disease, characterized by the presence of these round, white, pedunculated and sessile bodies. However, when it was discovered that this was really a form of tuberculosis, "perlsucht" became synonymous with tuberculosis in cattle. The tendency has been for the word to retain this significance. That there may be no misunderstanding as to the nature of these bodies, it appears better to speak of them as pendulous, pedunculated and sessile tubercles and masses.

Bizzozero<sup>1</sup> (1867) appears, according to McCallum<sup>1</sup>, to have been the first to record the occurrence of this condition in man.

*Bizzozero's Case.*—A young peasant, 24 years of age, who had died of pulmonary tuberculosis. On postmortem examination the peritoneum, both the visceral and the mesenteric, was found covered with numerous whitish tuberculous nodules, varying in size from the finest grain of millet to that of a pea. There were also tubercles on the parietal peritoneum. Some of the tubercles were imbedded in the tumefied peritoneum and appeared only as white spots, others were sensibly elevated, others projected by their whole height above the peritoneum; finally, others were not attached to their point of origin except by a pedicle of a length varying from a millimeter and varying in diameter from 1 to .33 to .25 millimeter. Often the pedicles were flattened, so that with a width of .5 centimeter it might have a thickness of only .125 to .1 of a millimeter.

Other cases in the literature are:

Creighton's<sup>2</sup> Cases.

Case 3.—A girl, age 8 years. A typical case of acute tuberculosis in a child. Post mortem examination: There was an abundance of tubercles on both the visceral and parietal pleura;



the tubercles were white in color, sessile, and even pedunculated.

Case 5—Male, 18 years of age, post mortem examination: Enlarged glands hung down from the portal fissure, as extensive tuberous masses, about five inches long, some of them nearly as large as hen's eggs.

Case 7—A female, age 18 years. Post mortem examination: On the surface of the lungs there were a number of pendulous nodules, one of which, about  $\frac{3}{8}$  of an inch in diameter, was suspended by a piece of the adhesion like a small medalion. Around the sharp margin of the right lower lobe there were a few small pleural nodules, partly fused into a cord, giving the margin a beaded appearance.

#### Jurgen's<sup>3</sup> Case.

This was a woman, 54 years of age. At autopsy there was found a right-sided pleuritis with old, thickened, black tumor formations and tubercles, varying in size from a millet seed to an apple. The lesser omentum was covered with numerous millet seed to pea size calcified nodules, separated from one another and attached in fatty tissue, sometimes on large pedicles.

#### Troje's<sup>4</sup> Case.

This observation was made in the post mortem room and no clinical history is given. The surface of the left pleura was beset with large and small grayish white caseous plaques. On the mediastinal and on the diaphragmatic pleura there were polypous and pedunculated nodules, partly caseous and varying in size from a millet seed to a small pea. Some of these appeared to have been calcified.

#### McCallum's<sup>1</sup> Case.

Female, age 38 years, died with symptoms of pulmonary tuberculosis. Post mortem examination. Just beneath the serous surface, over the visceral and parietal layers, there were nodules, varying in size from 1 to 2 millimeters to 2 centimeters in diameter. Some were sessile, but most of them hung free, each in a sort of long blind tube, formed, apparently, by the drawing out of the peritoneum into a tubular pedicle. Some of the pedicles reached a length of 10 to 12 centimeters, though most of them were much shorter. Some of the pedicles had been twisted and partial strangulation produced.

In microscopic sections of the peritoneal nodules it was found that they were made up for the most part of necrotic masses, surrounded by a capsule. The capsule was composed of

endothelioid cells, giant cells, and numerous lymphoid cells. Tubercle bacilli were numerous, particularly in the capsule, along the border between the living and the necrotic tissue.

Ipsen's<sup>5</sup> Case.

A 10-month old girl, the youngest of nine sisters. The fourth sister had died when four years old of tuberculosis. It was a full term child. It had nursed the breast for the first three months after birth. It was then fed on milk and sago-soup mixed with yolk of egg. It appears that the milk was heated only till it simmered and was then taken from the fire. Fourteen days before admission to the hospital a discharge appeared from the left ear and a week later facial paralysis developed on the same side.

On admission to the hospital the child appeared small and

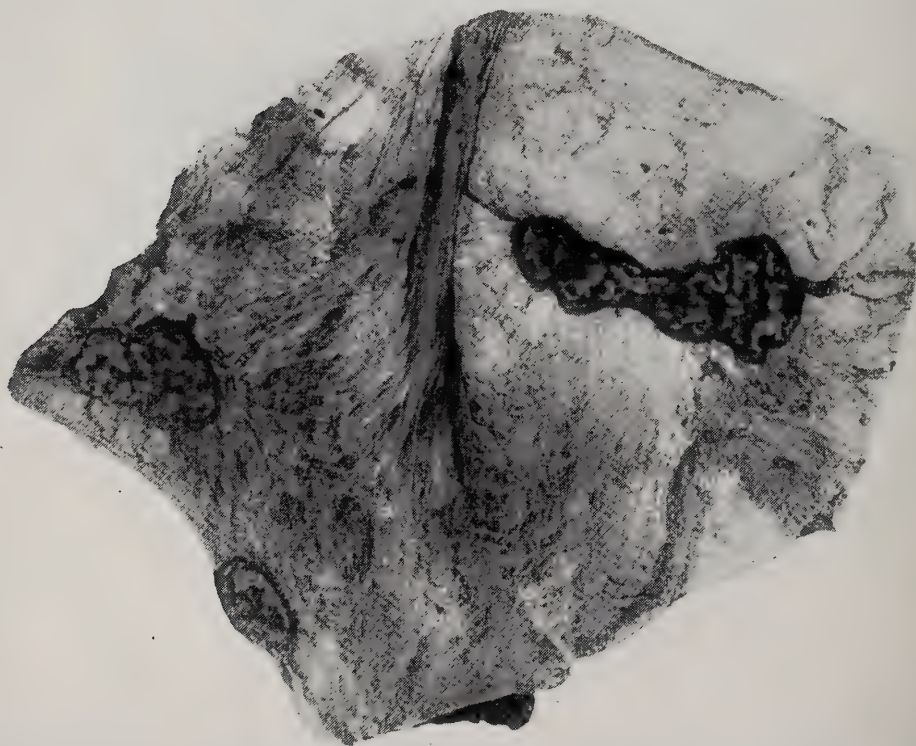


FIG. 1

Sessile tuberculous masses on the parietal peritoneum.

ill-nourished. On the margin of the anus there was a fissure. On the inner side of the thigh a cold abscess was to be seen. In the skin there were a number of small tubercle-like nodules.



A rachitic rosary was marked along the costo-chondral articulations.

There were frequent attacks of vomiting.

On the twenty-eighth day after admission the child began to cough. The antrum of the left mastoid was opened and found filled with thick pus, granulation tissue, and carious bone. The child grew progressively weaker and died about two months after admission. Post mortem examination: On the serosa were numerous tubercles and nodules. The largest were about the size of a pea and agreed in appearance with "perlsucht" in cattle. Some of the nodules were attached by their surface with a broad base on the serosa of the intestine. From this there were all transition of forms of connective tissue pedicles, which were in some cases long and thin and in other cases short and thick.

In microscopic sections the tubercles in the serosa appeared to be grouped along the large vessels. The nearer the tubercle appeared to the surface the more marked was the central necrosis. The free pendulous tubercles were made up almost entirely of necrotic tissue, encapsulated in a three to four-cell thick layer of epithelioid cells and a few giant cells. The capsule was thickest where the blood supply was most abundant.

Tubercle bacilli were not numerous in the center of the nodules but were more abundant along the border between the necrotic border and the capsule.

#### Uffenheimer's<sup>6</sup> Case.

A boy, one year old, well developed but somewhat emaciated and "rickety." His general complaint was distension of the abdomen and constipation. His father had suffered from disease of the lungs for nine years. The mother had been pregnant nine times. The patient was the last of six natural born children. He was fed for the first five weeks on Soxhlet and then on well-cooked cow's milk. He had an attack of acute diarrhoea when fourteen days old and survived an attack of pneumonia when two months old. A short time before admission to the hospital an abscess formed on the left index finger. Two days before admission the right ear began to discharge. On admission the costo-chondral articulations were enlarged. The tympanic membrane of the right ear had ruptured and the ear was discharging a purulent exudate. In the hospital the patient continually lost weight, areas of pneumonic consolidation developed in the lungs. He died with the symptoms of a tuberculous meningitis.

Post mortem examination: Small, flat, round nodules, varying in size from a millet seed to a bean and larger, covered the serous surface of the small intestines. A number of nodules were attached by thin, more or less long, strands and were freely movable in the peritoneal cavity. Ligament-like bands of adhesions extended between the intestines and the abdominal organs. These likewise contained soft caseous nodules.

When the pendulous nodules were examined microscopically there was found a central part of necrotic tissue, no calcification, surrounding the outer side of which there was a more or less extensive layer of fairly cellular connective tissue, containing a few giant cells and round cells. Tubercle bacilli were present in the central necrotic mass in multitudinous numbers and masses.

We have recently met with three cases, one case of generalized tuberculosis and two cases of carcinoma with metastases, that are in appearance practically identical with those given above.

These cases are briefly as follows:

Case 1—The patient was a half-breed American Indian, 48 years of age, single, a laborer by occupation. He was admitted for the first time to the wards of the Tuberculosis Sanitarium of the Cleveland City Hospital in July, 1912. He had marked cough and abundant expectoration. Large numbers of tubercle bacilli were found in the first examination of the sputum. He remained in the Sanitarium nine months and left greatly improved. He was re-admitted in August, 1913, five months after leaving. His physical condition at this time was much worse than at his former admission. Large numbers of tubercle bacilli were to be found in every field on microscopic examination of the sputum. His cough and expectoration became continually worse. He grew progressively weaker and died four months after his last admission.

Clinical Diagnosis: Pulmonary tuberculosis.

Autopsy 36 hours after death.

Anatomical Diagnosis:

1. Chronic ulcerative pulmonary tuberculosis with cavities in both lungs.
2. Sessile and pedunculated tubercles of the peritoneum and mesentery.
3. Tuberculosis of the adrenal and prostate glands.
4. Miliary tuberculosis of the thyroid gland and the heart muscle.



## 5. Chronic adhesive pleurisy.

On opening the abdominal cavity there was found about 500 cubic centimeters of dark-brownish fluid, with marked fibrous visceral adhesions.

Projecting from the parietal peritoneum there were about six irregular grayish-white masses, measuring from  $1 \times 1.5 \times 5.5$

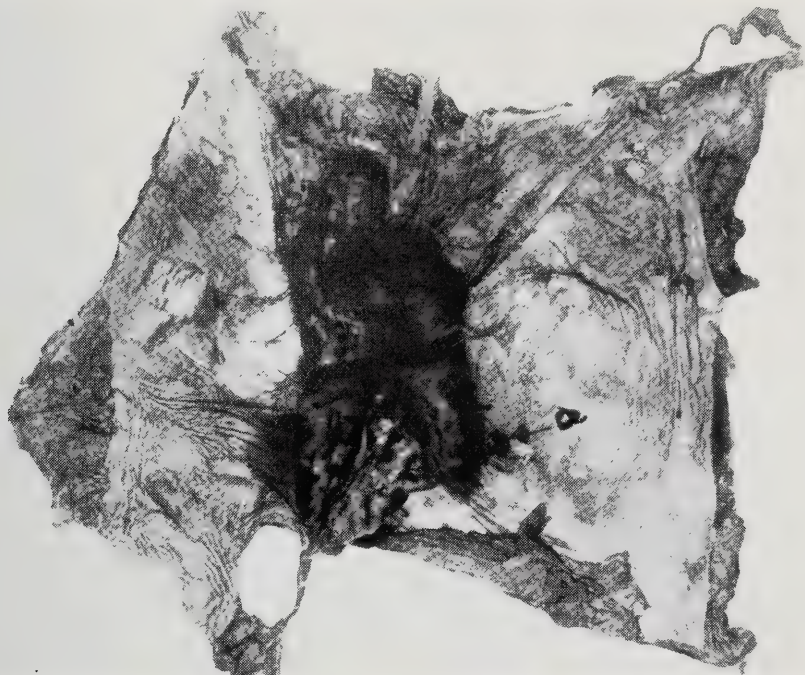


FIG. 2

Large sessile tuberculous mass situated over the peritoneal surface of the bladder with a smaller nodule at "a."

to  $3 \times 6 \times 1.5$  centimeters. These masses were for the most part sessile (see Fig. 1), but two of them were definitely pedunculated. The pedicles appeared more or less twisted. Over the peritoneal surface of the urinary bladder there was a very irregular mass, measuring  $4 \times 2 \times 11$  centimeters (see Fig. 2). Adjacent to this mass there was a round superitonsal nodule of the same color, measuring about .5 centimeter in diameter (see "a" Fig. 2). A pedunculated mass of about the same size was situated over the middle portion of the descending colon. Suspended from the mesentery near its attachment to the middle portion of the jejunum, by a thin, short, narrow band-like pedicle, there was a pendulous nodule, measuring  $1 \times 1.25 \times 1$  centimeter. In the pedicle was a small nodule measuring about .25 centimeter in diameter and scattered over the surface of the mesentery there were a number of very small nodules of the same character

as those described above. These nodules varied from 1 to 4 millimeters in diameter. Some of them were situated beneath the peritoneum, others projected from the surface of the omentum as sessile bodies, but a layer of peritoneum appeared to be drawn over their outer surfaces; others possessed distinct pedicles. The pedicles and outer surfaces of the nodules were quite vascular. The pedicles for the smaller nodules varied from 1 to 2 millimeters in length.



FIG. 3

Pendulous and pedunculated tuberculous masses suspended from the parietal peritoneum and the mesentery. Notice how the pedicle at "a" appears to have been twisted.

The mesenteric lymph glands were large and swollen. On section they were found filled with soft caseous material. On section both adrenals were found filled with caseous material. Sections of the prostate gave the same picture. The other abdominal organs presented no marked change.

The pleural cavities were obliterated by dense fibrous adhesions. The lungs were full, moderately emphysematous, and on section numerous grayish firm areas were to be seen. The areas were most numerous in the upper portion of the upper lobes of both lungs. Near the apex of each lung there was a well-defined cavity.

In microscopic sections of the nodules described above it



was seen that they consisted of a central mass of necrotic and caseous material surrounded by a capsule of connective tissue cells and endothelioid cells. The capsule varied in thickness from one to seven or eight micra. The thickness in general varied with the abundance of its blood supply. Where the blood vessels were most abundant the capsule were thickest, the cells were of an endothelial type and appeared to be proliferating. In certain portions of the capsule there was a moderate amount of round cell infiltration and scattered giant cells were to be seen.

Few bacilli could be found in the center of the caseous nodule, but around the periphery, just beneath and in the capsule, the organisms appeared more numerous.

Case 2—The patient was 43 years of age, Irish, a salesman by occupation. He was admitted to the hospital December 15, 1913, complaining of severe pain about the rectum and in the lumbar region of the back.

On physical examination a mass the size of one's fist was to be felt in the right abdominal region. It was firm and immovable and could be felt only on deep palpation. The patient required continually larger doses of morphine to control his pain. He grew progressively weaker and died about twelve weeks after his first admission.

Clinical Diagnosis: Inoperable carcinoma of the rectum.

Autopsy 36 hours after death.

Anatomical Diagnosis:

1. Acute vegetative endocarditis (mitral).
2. Carcinoma of prostate.
3. Carcinomatous invasion of pelvic and retroperitoneal lymph nodes.
4. Deep ulceration of the lower portion of the rectum.
5. Metastases to liver, spleen, kidney and omentum.
6. Pendulous metastases to visceral peritoneum.
7. Acute splenic tumor.
8. Congestion of lung, liver, spleen and intestine.
9. Hydro-ureters.
10. Hydro-nephrosis.

There was a well developed and only moderately emaciated white male. On opening the abdominal cavity no free fluid was found. The pelvis was filled with firm nodular masses. The blood vessels and ureters were imbedded in a thick mass and were more or less constricted. Extending along the spinal column

from the pelvis to the diaphragm the retroperitoneal lymph nodes were greatly enlarged, quite firm and nodular. They covered the spinal column, the aorta, and the vena cava as a thick semi-cartilaginous mass, measuring from 2 to 3 centimeters in thickness. The spleen was large, soft and deeply congested. On its surface and on section a number of irregular grayish areas of metastases were to be seen. The liver was congested, reaching three fingers' breadth below the costal cartilage in the anterior axillary line. Beneath its capsule and over its cut surface a number of large and small areas of metastases were present. The omentum was free. It contained a moderate amount of fat and a number of small nodules of metastases. The intestines were free. From the peritoneal surface of the descending colon, about its middle portion, there extended three rounded nodules, varying from .1 to .5 centimeter in diameter. The nodules were free and were suspended by pedicles measuring from .5 to 1 centimeter in length. The pedicles appeared as extensions of the visceral peritoneum and were quite vascular.

In sections of one of the small pendulous nodules it was seen that the central portion of the nodule was made up of necrotic cells while the cells nearer the periphery were well preserved. The cells were of the same general shape and character as those found in the prostate and in the metastases. The nodule was surrounded by a thin layer of connective tissue and blood vessels.

Case 3—Male, porter, 51 years of age, Hungarian. He was admitted to the hospital February 12, 1914, complaining of "Tuberculosis." He claimed to have had a cough for three years. On physical examination the thorax appeared asymmetrical, the right side appearing smaller throughout than the left. The right supraclavicular space was deeper than that of the left. Expansion was diminished on the right. Tactile fremitus was increased about the apices and the upper part of the chest on both sides. Both apices appeared greatly dulled to percussion and the entire right side gave a duller note than the left. On auscultation bronchial breathing was heard over the region of both apices. Repeated examinations of the sputum were negative to acid-fast organisms. There was a regular rise in temperature to about 100.1 degrees Fahrenheit every evening at 6 o'clock.

Clinical Diagnosis: Pulmonary tuberculosis.

Autopsy 36 hours after death.

Anatomical Diagnosis:



1. Hypernephroma of the left kidney.
2. Metastases to lung, liver, and pericardial pleura.

Post mortem examination of the abdominal cavity and viscera revealed nothing remarkable except the marked general diminution in the amount of fat and the condition found in the left kidney and liver.

The left kidney was enlarged to twice its normal size. The upper two-thirds of the organ was occupied by an irregular, nodular grayish mass. The tumor mass had a yellowish-gray cut surface. Passing in divers directions across the surface were a number of lighter colored bands of firmer consistency than the general tumor mass. These bands divided the surface into numerous alveolar spaces of variable sizes. These spaces were filled with grayish-yellow, soft pultaceous material which could not be readily expressed. On section the cut surface of the liver was studded with a number of grayish-white areas of metastases.

In the thoracic cavity the organs all appeared free and in normal positions. Scattered over the visceral pleura and over the cut surface of the lungs there were a large number of grayish firm nodules of metastasis. In the left pleural cavity extending from the lower portion of the pericardial pleura there were small, millet seed to pea size, subpleural, firm nodules. The nodules were elevated and two of the large ones had distinct pedicles, measuring respectively .5 centimeters in length. The pedicles appeared to have been formed by a drawing out of the pleura, which, with its blood vessels and connective tissue, passed over the nodules as a capsule.

How these masses originate and develop in tuberculosis has been an interesting question and has been discussed to a certain extent. Virchow, Bizzozero and Creighton, writing before the tubercle bacillus had been discovered, thought them to be of the nature of neoplasms or autonomous growths (lympho-sarcomas) and that their pedicles had resulted from their situation and from their weight. In Doctor McCallum's case it was suggested by Doctor Welch that the masses were tubercles that had developed in pre-existing loose adhesions and bands of new formed connective tissue.

Troje together with Tangle claim to have reproduced typical pendulous nodules in both the peritoneal and the thoracic cavity in dogs by the subcutaneous injection of tubercle bacilli that had been treated with iodoform powder. From this Troje argues

that one factor in the production of the nodules is an infection with an organism of attenuated virulence.

Ipsen injected about .5 cubic centimeter of a mixture of a caseous lymph node from his case into the neck of a two-month-old calf. A swelling the size of an egg developed at the point of injection. This ultimately subsided and, when the calf was slaughtered three months later, no evidence of tuberculosis was found in any part of the body, except at the point of inoculation and in the cervical lymph nodes immediately surrounding it. He concluded that the organism must be considered non-virulent or of minimal virulence for cattle.

Some of the later observers, as Uffenheimer, believe, nevertheless, that the nodules are evidence of infection with bovine tubercle bacilli and have attempted to trace the infection to improperly cooked cow's milk. Inasmuch as no isolations of the organism from the nodules in any of the cases so far reported have been made, the relation of the organism to "perlsucht" in cattle and the bovine type of tubercle bacilli must remain an open question for further investigation. However, the fact that there appears to be no particular tendency for the lesions to occur in children with tuberculosis tends to demonstrate that there is little, if any, relation between the two. The experimental results of Troje and Tangle are interesting, but to be of value they must be repeated and confirmed with organisms isolated from such nodules, or, at least, with organisms whose biological characteristics are known.

The complete history of the adhesions following inflammation of the serous membranes has never been worked out. From the experience of the post mortem room it appears that certainly a large proportion of them remain firm and hold throughout life. Nevertheless, there are certain instances, especially where there was, apparently, an abundance of fluid and the adhesions were consequently loose and vascular, where the adhesions have broken loose and remain as free vascular serous bands or soft elevated masses. I have seen such in the pericardial cavity and likewise in the pleural and abdominal cavity. Other pathologists have had a similar experience. Fat may subsequently be deposited in these free adhesions and it is probably in this way that the polypous lipomata, as described by Virchow<sup>7</sup> are formed. It is also quite as possible that in a generalized infection with tubercle bacilli that a certain number of tubercle bacilli may be deposited in such



adhesions that exist preformed or are formed in the course of the infection and subsequently heal and, as suggested by Doctor Welch, give rise to pendulous masses. In the same manner cancer cells may be deposited. The vascularity aids their growth and soon a considerable mass of cells may be generated to hang or project as a free body in the cavity.

If this view as to the formation of these masses be correct, the occurrence of the so-called "perlsucht" in man and of free nodules of malignant and other cells in the serous cavities simply indicates that either previously or coincidently with the present condition the individual has had an inflammation of the serous membrane that has completely or partially healed and that meta-static-like foci have been formed in these adhesions.

### References

1. Bizzozero: *Morgagni*, Vol. IX, 1867.
2. McCallum: *Johns Hopkins Hospital Bulletin*, Vol. XII, 1901, p. 293.
3. Creighton: *Journal of Anatomy and Physiology*, Vol. XV, 1881.
4. Jurgens: *Verhandl. d. intern. med. Kongr.*, Berlin, 1890, III Abt. p. 171.
5. Troje: *Deutsche med. Wochenschr.*, 1892.
6. Ipsen: *Virchow's Archiv.*, Bd. 177, 1904, p. 570.
7. Uffenheimer: *Munchner med. Wochenschr.*, July 18, 1905, No. 29.
7. Virchow: *Pathologie des Tumeurs*, Paris, 1867, p. 378.

**Autoserum Treatment**—W. S. Gottheil and D. L. Satenstein, New York (*Journal A. M. A.*, Oct. 3, 1914), remark on the neglect of therapeutic contributions in dermatology and say that they have looked with some scepticism on the favorable reports of the treatment of certain dermatoses with serum, autogenous or foreign. They notice certain of the communications that have been made which have led them to take up the subject clinically in the City Hospital of New York. What interested them was the results and the method employed, which they describe. To obtain the serum they used a rapid centrifuge. There were eighteen patients in all, to whom two hundred and fifty of these autoserum injections were given. In only one case did they see any contra-indications to their use. There were twelve cases of psoriasis, two of radiodermatitis and one each of furunculosis, pustular acme and dermic abscesses, chronic urticaria and lichen planus. All of the four last were improved under the treatment. The results were astonishingly good in one case of radiodermatitis, and in psoriasis they were especially satisfactory. The patients with psoriasis were given from four to six autoserum injections at intervals of from five days to one week, during which they pursued their ordinary avocations and no local treatment except ordinary baths and soap frictions were employed. At the end of the serum treatment a weak chrysarobin ointment for the head and hands were used and the plaques disappeared in a few days. The authors do not pretend to explain how the good results in psoriasis were produced. They do not believe there were any micro-organisms concerned and we must look for some internal metabolism derangement, not of the grosser sort, for their cause. The authors mention as the most promising field of investigation into the etiology of the still mysterious dermatoses, that of the internal secretions, and mention the skin symptoms produced in the diseases of these organs as suggestive. They also mention the possibility of the blood letting for the serum production as a factor producing the good result.

## A FLEXIBLE METAL SPLINT ADAPTABLE TO ANY ANGLE OF KNEE OR ELBOW

By FREDERICK C. HERRICK, M. D., F. A. C. S., Visiting Surgeon to  
Cleveland City Hospital, Assistant Surgeon to Charity  
Hospital, Cleveland

In the treatment of fractures of the extremities, metal splints, adaptable by their flexibility to various angles of the elbow or the knee, have been found by the writer to be of very great value. Their advantages over the many forms of elbow and knee splints have been well proven in a series of over four hundred fractures of the upper extremity occurring in the



FIG. I

Four sizes. Front and side view showing construction and reinforcement.





FIG. II

A properly fitting splint to the elbow.

writer's service at the Charity Hospital Dispensary and in private work. Many cases of trauma and infection about the knee joint, both ambulatory and hospital cases, have further tested their efficiency, the same splint being used on the knee as a posterior splint. Besides holding either joint firmly at any angle desired, their great comfort has been voluntarily attested by many. The surgical staffs of both Charity Hospital and the Dispensary are in accord with the above.

In our experience there is no elbow splint to be had in the market which combines adaptability to any angle with sufficient rigidity and durability. Those to be had with changeable angle are flimsy and do not begin to hold the joint sufficiently at rest, while those of papier maché, metal, etc., at a fixed angle possess the disadvantage that both as to angle and size a large stock is necessary to fit the various conditions of age and deformity which come for treatment.

Fig. I. Four sizes. Front and side view, showing construction and reinforcement.

Fig. II. A properly fitting splint to the elbow. It must approach closely but not press on the posterior axillary fold; it must extend to the knuckles so that the hand may be held in the desired position, both supported and prevented from rotating the bones of the forearm. The desired elbow angle varying greatly according to the location and line of fracture must be obtainable. A free space between the leaves of the splint must give access to the joint for bandage or dressing without removing the splint. In the case of compound fracture this is most necessary, and frequently, especially in the knee, a removable compressor bandage is desired. This space further gives free passage to the Xrays so that the effect of the position and dressing on the fragments about the joint can be observed without removing the splint. Note the location of adhesive straps. Note that no pressure is brought on bony points about the elbow, which removes a constant danger of pressure necrosis from insufficient padding or working loose of the padding. Note the careful padding of the leaves of the splint and especially of the extreme ends.





FIG. III  
Same with bandage applied.

Figs. IV and V. Same splint applied to the knee in same patient.

Four adhesive straps are necessary to hold the splint properly.

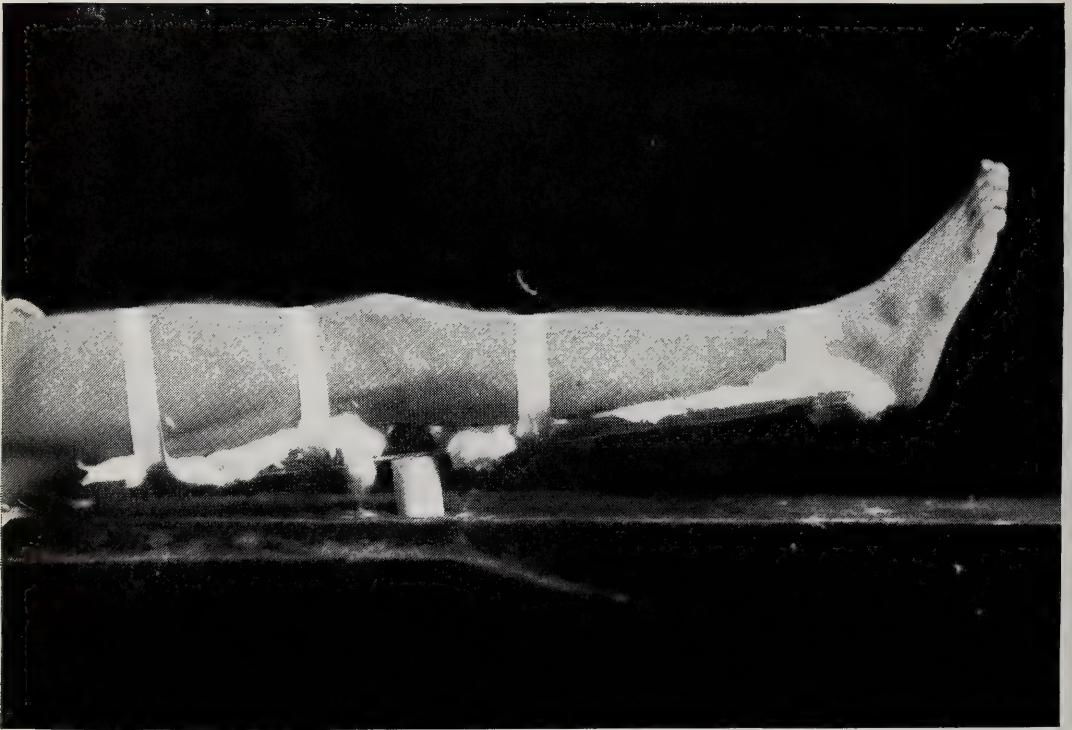


FIG. IV

Same splint applied to the knee in same patient.



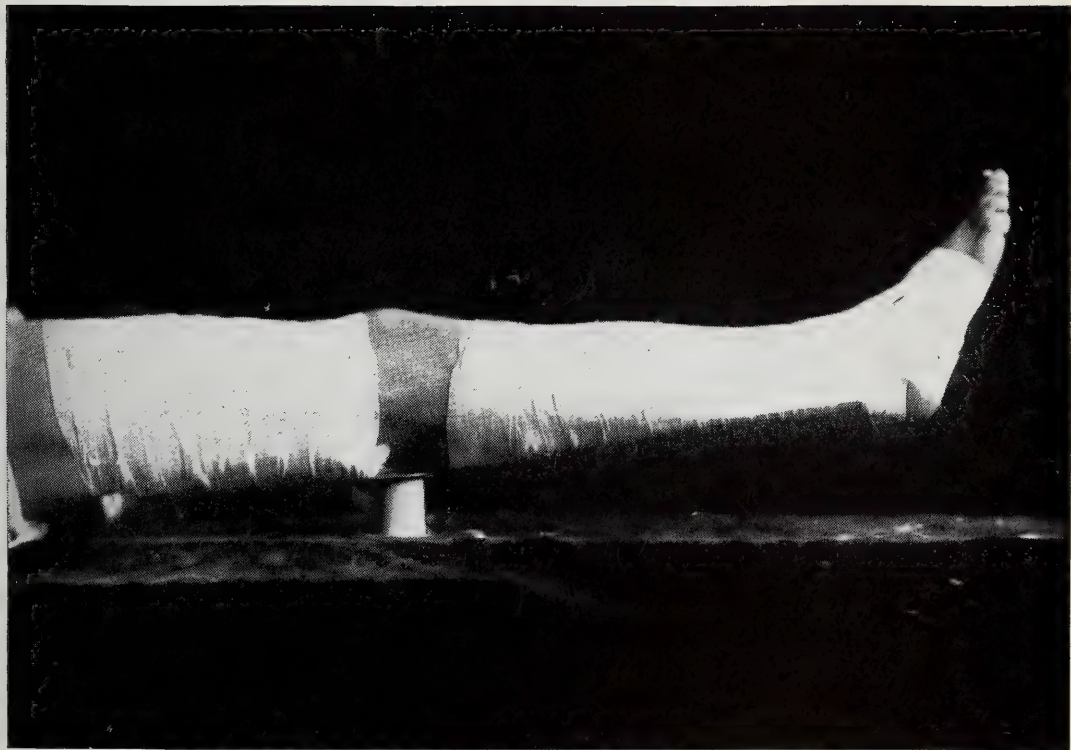


FIG. V

Same splint applied to the knee in same patient.

Fig. VI. In bending the splint to an acute angle, first, make a partial bend near each leaf by bending over some firm edge (e. g., back of a wooden chair).



FIG. VI

In bending the splint to an acute angle, first make a partial bend near each leaf by bending over some firm edge (e. g., back of a wooden chair).





FIG. VII

Then grasp the splint over the reinforcing bar and bend to the desired angle.

Do not bend more often than necessary, as all good things have their limit.

These splints have been kindly made for me and many trial ones by a local instrument company.

112 Lennox Bldg.

## **SOME OBSERVATIONS NOTED IN ONE HUNDRED CASES OF GENERAL PARALYSIS OF THE INSANE IN MARRIED MEN, THEIR WIVES AND CHILDREN\***

By ARTHUR G. HYDE, B. S., M. D., Assistant Superintendent Cleveland State Hospital, Cleveland.

This report considers one hundred married men who have been admitted to the Cleveland State Hospital during the past four and a half years suffering from general paralysis of the insane, their wives and children, with the serological and cytological findings. Each year there is admitted to this hospital a large number of men suffering from this disease. During the last fiscal year fifty-four and during the last four and a half years two hundred and sixty cases. From this number it has been possible to select one hundred men who were married and had a wife, or wife and children living. As is well known, paresis, up to the present time, has been considered as an incurable disease of the brain, involving principally the leptomeninges and cortex, manifesting itself by certain physical symptoms and a progressive mental deterioration.

The etiology of this disease has for years been a subject of contention, but since the application of serum diagnostic methods to syphilis, scarcely any doubt can remain but that this disease is always the underlying cause.

Syphilis has been known since the fifteenth century. Regarding its earlier history medical writers do not agree. It was 400 years later, March 3, 1905, that Schaudinn first saw the spirochaeta pallida, the cause of syphilis. This discovery made possible the certain identification of the disease as an entity. During the year 1906 Wassermann, Neisser and Bruck introduced the serum reaction which reveals the presence of the disease when all external symptoms have disappeared. During 1913 Noguchi showed the presence of the spirochaeta pallida in the brain of paretics, thus simplifying and proving our conception of the infection.

These additions to our knowledge of syphilis allow us to combat and treat this disease more vigorously than ever before. In order to do this it is necessary that we study the different classes of our people and through the means of the Wassermann reaction we are able to do this, with exciting little or no comment, and many cases of latent and unrecognized syphilis will be

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\*Read at Academy of Medicine of Cleveland, October 2, 1914.



discovered and given medical attention, which, if left untreated might prove serious to patient and offspring. This idea is already being carried out at the Cleveland State Hospital with a great amount of satisfaction to all concerned. Paretics give practically 100 per cent positive Wassermann reactions. Only a small number of syphilitics develop paresis. The percentage of this disease has, however, increased during the past few years, partly probably because it is becoming to be more generally recognized. Whether this fact holds true for the future depends upon our present-day treatment of syphilis. In all hospitals for the insane one comes in daily contact with the wives and children of these unfortunate individuals; this association suggested the idea of going into their history, obtaining a Wassermann test of their blood, and finding out as far as possible what part this disease played in their lives. These cases were selected with care so that it was possible to obtain the blood for examination in one hundred of the wives, and one hundred and sixteen of their one hundred and thirty-four children.

Syphilis is correctly designated as one of the three plagues, and is harmful in many ways; namely, by the harm it inflicts upon the patient, on his family, its heredity consequences and the degeneration it causes in the species. As the following cases well illustrate, syphilis has a murderous effect on the offspring. It kills them either before birth, during the first few weeks of life, or at a more advanced age. As you will see, it frequently produces a whole series of abortions or dead infants.

Fournier gives statistics of four hundred and ninety-one pregnancies observed in syphilitic families in which one or both parents were syphilitic. These pregnancies resulted in one hundred and nine living children and three hundred and eighty-two deaths, or 77 per cent. The hereditary influence varies according to the age of the disease, and to its parental origin. The nearer conception is to infection, the greater the danger of interruption of pregnancy. The inaptitude for life transmitted by luetic parents to their offspring may show itself in the intra-uterine death of the foetus. When, however, the child reaches full term, the luetic dystrophies are often seen. Some of the children are born small, have no resistive powers, and die early; others survive, but they remain small, have no resistance to tuberculosis and other infections, and are particularly subject to rickets. Impaired development and diminished resistance are the promi-

nent characteristics of such children. The child goes from bad to worse; it suffers from malnutrition and often succumbs to chachexia. Hereditary syphilis offers in general a very bad prognosis.

Kassowitz states that "one-third of all syphilitic infants die in utero, and of the remaining, 35 per cent succumb during the first six months of life."

Statistics show that paternal heredity has the lowest mortality, about 30 per cent, while that of maternal is about double, or 65 per cent, and mixed, the most fatal, with 80 per cent. Our observations were found to be even higher than this, reaching almost 90 per cent. Experience teaches us that this influence is often very unequal, according to the age of syphilis. It attains its maximum in the first few years of the disease, and gradually decreases afterwards. The effect of time is to attenuate and then finally annihilate hereditary influence.

In analyzing the statistics of these one hundred men suffering with paresis, their ages ranged from twenty-eight to sixty-one years, with an average of forty-five years. Careful precautions were taken to get a reliable history as to the time of infection, and in order to do this it was necessary to use considerable diplomacy. The patient was questioned carefully when at his best, his relatives were interrogated, and frequently the family physician was consulted. By doing this it was possible to get a satisfactory history in 70 per cent of the cases, a questionable history in eighteen, and no history whatever in the remaining twelve cases.

The average cell count was thirty-two, the highest one hundred and twenty, and the lowest twelve per c. m. m. In reviewing the findings of their wives, twelve showed a very positive serum reaction. A second and third test was made at later intervals in order to eliminate any doubt, and were found to be the same. None of these women were aware of any existing trouble, and all were unable to give any history that would suggest the time of their infection. These twelve women gave a history of forty-nine pregnancies. These pregnancies resulted in forty-four deaths and five living children. The forty-four deaths were subdivided into twenty-four miscarriages, nine still births, and eleven cases which died soon after birth. The mothers gave a history of from two to four miscarriages before the birth of



these five children. Each child showed a very positive serum finding and all presented well defined dystrophies. The remarkable predisposition of syphilitic women to abortion is a well known fact—more important still is the fact that the syphilitic influence is prolonged so as to cause repeated abortions. One of these wives was admitted to this hospital suffering with locomotor ataxia. Her husband was a patient at the same time, having been admitted some two years previous, suffering with paresis. His history showed he had had syphilis sixteen years prior to admission, with little treatment. A few months after his infection he was married, and from the history obtained from his wife, he undoubtedly infected her at the time of their marriage, although she was ignorant of the disease. Her history was a series of five miscarriages, all occurring during the first half of pregnancy, with no living children. Husband and wife both died a few months apart from the infection received eighteen years previous. Another wife whose husband had a history of syphilis eleven years before with only a few months' treatment, gave a history of six miscarriages and no living children during a marriage of nine years. Another one gave a history of four still births and one child which died at the age of six months, during a marriage of ten years. This husband's history showed that he had syphilis four years previous to his marriage, with but little and questionable treatment.

The remaining eighty-eight wives, whose serum tests were negative, were the mothers of one hundred and twenty-nine children and gave a history of two hundred and one miscarriages and still births, and it is quite probable that these figures may be too small, due to the temerity of the women to state the true conditions. Forty-six of these women were the mothers of all the children, and gave a history of one hundred and sixteen miscarriages and still births. The serum tests of one hundred and sixteen of the one hundred and thirty-four children showed a positive Wassermann reaction in thirteen cases. All of these thirteen children presented some of the dystrophies and none had ever enjoyed good health, being under the care of physicians most of the time. Their ages ranged from two to twelve years. The remaining one hundred and three children whose serum was found to be negative presented varying types of health, the majority being below normal, physically.

In the majority of these cases the father's infection preceded

marriage from three to ten years, and the mothers usually gave a history of at least one miscarriage preceding birth of her first child. Our statistics invariably showed that the longer the infection was previous to the birth of the child the greater was the child's chance to be free from any congenital defect and to enjoy good health. Twenty-eight of the remaining forty-two wives gave a history of eighty-five miscarriages and still births with no living children, and the remaining fifteen women had never been pregnant. This work was started with the hope that it might incite others to make a more routine use of the Wassermann reaction in examinations where there is the least doubt of an infection; certainly no better start can be made in our public health bureaus than an introduction of Wassermann reaction surveys. At the present time a few municipal laboratories in our large cities are making these tests, and the same is also being done in a few of the larger hospitals in the east and it is only a question of time until the general population will be so examined, but this advance cannot be brought about without education of the laity, together with moral and financial support.

This is an age of preventive medicine and in the last few years wonderful advancement has been made in the treatment of syphilis, and metasyphilitic diseases. The Swift-Ellis treatment as applied to the latter diseases appears to offer much, judging from the encouraging reports of recent writings and from the work being carried out in our hospital which we will soon give in a preliminary report.

In conclusion I wish to remark that syphilis is a very prevalent disease. That a moral and medical campaign carried on in an intelligent, educational manner is very essential. That an early diagnosis of the disease is necessary, and this is possible by Wassermann surveys carried on in the proper manner. Our knowledge of the results of treatment are more reliable than formerly as a result of these tests. By treating our patients until these tests show they are cured we will abolish further danger to parent and future offspring and render an obligation to their posterity.

I wish to express my thanks to Doctor Charles H. Clark, superintendent of the hospital, for his help, and to Doctor Willard C. Stoner, in whose laboratory these tests were made.



## RESEARCH NEEDS AND CLINICAL OPPORTUNITIES

By N. WILLIAM INGALLS, M. D., from the Anatomical Department,  
Western Reserve University, Cleveland

The medical profession, to whom this appeal is directed, sustains a rather peculiar relation to the human embryologist. Investigators in other fields have ready access to the sources of their material, sources which in many cases are simply inexhaustible, and they have often only to reach out and select, from the abundance about them, whatever best suits their needs. Not so the student of human embryology and teratology. He is dependent upon the interest and co-operation of the profession for the very material with which he works, and it is in the hope of stimulating this interest and co-operation and of opening up new sources of material that these lines appear in *The Journal*. That there is a considerable amount of such material is unquestioned, but unfortunately only a small part ever finds its way into the laboratory, where it first becomes valuable and where alone it can receive the examination and study which it deserves. It may not be so evident, however, that any great value attaches to this embryological and teratological material, this flotsam and jetsam of the sea of life, which falls into the hands of the physician and surgeon.

*All material is valuable.* Our knowledge of the development of the human embryo is by no means complete, being particularly fragmentary in respect to the earlier stages. But regardless of the size of the specimen, be it old or young, fetus or embryo, it has in any case its own peculiar lesson to teach.

Teratology, or the science of malformations and monsters, is yet in its infancy, and progress can only be made by the careful study of all specimens which can be procured, whether occurring in man or in lower animals. I have said that *all* material is valuable, and this is especially true in teratological studies. A large percentage of abortions and a still higher percentage of tubal gestations contain embryos or fetuses which are *not* normal. But it is exactly here, in the *pathology of embryology*, in the study of abnormal ova and young monsters, and, wherever possible, of the uteri and tubes in which these were developed that we have to seek for an explanation of these abortions and for the factors concerned in the production of monsters. The study of normal and abnormal development must

go hand in hand. The field is large and in certain directions almost uncultivated, and our plea is that the rich and varied material which is present may be made available for purposes of investigation. I would include here: everything expelled at abortion, either spontaneous or induced; tubal pregnancies, as far as possible intact; pregnancies *in situ*, i. e., hysterectomies in cases of pregnancy; curettings, where one or more periods have been passed; in a word, anything which could be classed among the products of conception, be they small or large, embryonic or at term, normal or monstrous.

In addition to the material itself there are two other important considerations to which I would direct attention since they enhance very greatly the value of a given specimen. I refer to the *clinical history* of the case and the *preservation (fixation)* of the actual specimen. As regards the former, it should be as complete as possible, with special reference to whatever data may help in determining the age, or throw light upon any abnormality which may be discovered. Among the more important points may be mentioned the following:

Age and general condition of patient (family history).

History of previous pregnancies (twins, monsters, etc.) or of abortions (month, cause).

Past or present disease of uterus or adnexa (venereal disease).

History of present pregnancy (abortion), menstruation, various signs and symptoms, dates.

Probable or possible cause of observed conditions.

The proper preservation, or fixation, of the specimen is of the utmost importance. It should be placed, intact, at the earliest possible moment in several times its own bulk of a 10 per cent solution of formalin (1 part commercial formalin and 9 parts water). If formalin, which is preferable, cannot be obtained, the object may be put into strong alcohol. If the receptacle in which it is placed be completely filled with the liquid—excluding all air and so avoiding undue shaking—the whole may be safely sent at once to the Anatomical Laboratory. Very large specimens, where the above treatment is not convenient, will be called for if so desired. Any expense entailed will be gladly borne by the laboratory.

Any and all material will be gratefully received and find its proper place in the growing embryological and teratological collections of the Anatomical Laboratory. In conclusion I would take this opportunity to thank again those whose generous contributions in the past have made these collections possible.



# The Cleveland Medical Journal

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## EDITORIAL

### An Outbreak of Foot and Mouth Disease

Foot and Mouth Disease, also known as Aphthous Fever, Epizoötic Catarrh, Eczema Contagiosa, is an Acute Communicable Disease usually confined to the ruminants and characterized by a vesicular eruption on the mucous membrane of the mouth and on the skin between the toes and above the hoofs. The vesicles rupture, erode, or ulcerate. Salivation, tenderness of the

infected parts, loss of appetite, emaciation, and rapid cessation of lactation among dairy cattle ensues.

The disease is extremely contagious, so much so that if one animal in a herd is infected, the entire herd is almost certain to become infected. While the mortality is not high, the effects of the disease are such that animals recovering are practically useless for long periods. Animals infected are said to become valueless for breeding purposes. No definite immunity is rendered by an attack. The period of incubation is somewhat variably reported by various observers to as high as forty days.

The disease in man is a direct counterpart of that in cattle. Infection is usually transmitted by means of milk or other dairy products. It is rarely transmitted from the salivary secretions or other infected material. It is doubtful whether the disease can be transmitted to man by sub-cutaneous or cutaneous inoculation. Children are the most frequently infected. Unless the individual be physically depleted, death or serious consequences never occur. In man, foot and mouth disease has been on one occasion demonstrated as a contamination of vaccine virus. From this, however, no serious results are likely to occur, as will be noted by German statistics. In thirteen years, 32,166,619 were vaccinated. Of these, one hundred and fifteen died within a few weeks or months after the operation—presumably of injuries which might be associated with the operation.

Foot and Mouth Disease has appeared in the United States on five occasions; in 1870, 1880, 1884, 1902-3, and 1908—each outbreak having been followed by complete suppression by application of preventive means, namely: isolation, disinfection, inspection of all forms in the infected areas, and the destruction of the sick animals. Little is known of the virus. It is ultra-microscopic and filterable. The question of immunity seems to be an open one, there being a disagreement in the views held by the German authorities and those of the U. S. Department of Agriculture.

It is believed that the present outbreak was brought into this country in August in hides imported from the Argentine, or by those of the Water Buffalo imported from the Philippines, these hides being used by belt manufacturing companies in Niles, Mich. The first cases reported to the Government were from Southern Michigan and Northern Indiana. The infected dairies were quarantined, but it was discovered that hogs and feeders and



stockers had been shipped to the Chicago Stock Yards and there scattered throughout the country. The work of following up and securing control of all of these sources of infection is a stupendous undertaking, but it is being pursued with the utmost zeal.

Quarantine is extremely rigid, prohibiting interstate shipments of cattle, sheep and swine, and requiring disinfection of all hides, skins and hoofs of live stock, as well as hay, straw, manure, et cetera. A few days after the reporting of the disease in Chicago, it made its appearance in the valuable live stock on exhibition at the National Dairy Show. Owners of this live stock from all sections of the country are extremely bitter in their criticism of the manner of quarantine maintained by the authorities in Chicago. For instance, it was known that the disease was present in the exhibit herd during the middle of the concluding week of the Show. Thousands of people were permitted to pass through the exhibit, and immediately after the closing of the Show a rigid quarantine was applied. This mal-administration will undoubtedly be aired in the courts. Thirteen States are now quarantined, including Ohio.

C. E. F.

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**Pemphigus Neonatorum.**—An epidemic of nine cases of pemphigoid of the new-born in the Maternity Hospital, Cleveland, is reported by H. N. Cole and H. O. Ruh of that city (*Journal A. M. A.*, Oct. 3, 1914). The cases are reported and a summary of the epidemic given. "In a series of eight or possibly nine cases of infantile pemphigoid the *Staphylococcus aureus* was cultivated in pure culture in all cases in which unbroken vesicles could be found. In the first case a bacteriemia developed; resulting in death on the twelfth day of the disease. In the other cases the use of an autogenous vaccine seemed to give prompt results when other measures failed. The infections were apparently carried from one to another and despite strict isolation precautions and fumigation of separate rooms, the epidemic became so extensive that it was necessary to close the institution for a thorough disinfection. Only after the disinfection of the entire institution did no new cases develop." The authors discuss at some length the etiology, diagnosis, etc., and sum up as follows: "1. In an epidemic of nine cases of 'infantile pemphigoid' (pemphigus neonatorum) it was possible to isolate in pure culture the *Staphylococcus aureus* in all cases in which unbroken culture were to be found. In one case the termination was fatal and a coccus was found in the internal organs at necropsy. 2. The epidemic was started from a case of typical pemphigoid of the new-born which later changed into a clinical picture of dermatitis exfoliativa neonatorum (Ritter), and as the etiological agent in the two diseases is the same we believe there should be no distinction between them. 3. Impetigo contagiosa seu vulgaris seu bullosa (streptogenes) should be sharply differentiated from infantile pemphigoid because of its different bacteriological origin. 4. We believe that infantile pemphigoid (Penphigus neonatorum) should be placed among the reportable diseases because of its severe epidemic characteristics and high mortality (from 25 to 50 per cent.). 5. Because of the striking results obtained in our epidemic we would recommend the use of autogenous vaccine in all cases of infantile pemphigoid." The article is illustrated.

## DEPARTMENT OF THERAPEUTICS

Conducted by J. B. McGEE, M. D., Cleveland

**Digitalis:** Louis Faugeres Bishop in the *New York Medical Journal* for August 29th considers the use of digitalis in chronic diseases of the heart. However much the scientific knowledge of digitalis may be advanced, the adaptation of the remedy to the individual must always remain a matter of art. Digitalis is like the foil in fencing or the club in golf. In the hands of one man, victory is uniform, while in the hands of another, defeat is equally certain; and yet the latter may know more of the theory of the game than the former. Fibrillation of the auricle and very serious valvular disease, constitute the most frequent condition in persons who are benefited by the use of digitalis over periods of months and years without interruptions. In both conditions, when broken compensation has been restored on two or three occasions, and has been restored by digitalis after days of anxious waiting for the desired effect, a condition of well being without these dangerous attacks can often be maintained by suitably regulated doses taken continuously. The matter of regulation in dose pertains to the art of medicine, and is not susceptible of absolute rule. The amount of the drug required is more or less a matter of experiment. He has at the present time patients who take a grain and a half of digitalis every day, others who take three-quarters of a grain on alternate days; and others a dose once a week. In each instance, these doses were started after the phenomena of complete saturation were attained. In chronic fibrillation of the auricle, a good rule is to keep the pulse in the neighborhood of ninety. In chronic valvular disease, it is well to keep the tonicity of the heart muscle at such a point that there will be a minimum amount of shortness of breath. The third type of disease where the continuous use of digitalis is often indicated, is the later stages, or as he calls it the "digitalis stage" of arteriosclerosis, when the high blood pressure has a tendency to be succeeded by a lower pressure that falls below the line of compensation. Every heart patient should be seen to at least once a month. The important point is to anticipate the need of digitalis. Careful observation often reveals defective kidney action several days before other signs appear. There is no such thing as a digitalis habit. On the other hand, there are many persons whose lives depend upon digitalis, for without it they would have enjoyed but a short lease of life. The continuous use of small doses does not lessen the efficiency of larger doses if required. Sometimes it is best to stop the digitalis entirely for a week, and then begin with larger doses. Digitalis may finally produce a true strengthening of the heart, and its use can suddenly be withdrawn without any danger. As to contraindications, it should be borne in mind that if the secretion of urine apparently diminishes under digitalis, it is well to stop for awhile, and allow this effect to subside. Later even larger doses may lead to diuresis.

**Strophanthin:** H. G. Schleiter in the September number of the *American Journal of the Medical Sciences* presents some observations on the intravenous use of strophanthin with regular and irregular pulse rhythms. Observations have not been explicit as to the type of cases in which strophanthin was employed, and, until the more recent reports of Agassiz and Linnell, have produced the impression that it yielded beneficial results, in all cases of heart failure, regardless of the pulse rhythm. This is clearly not so, and the type of cases in which good results are obtained is so sharply defined that it would seem to deserve more emphasis than it has generally received. His conclusions are: (1) the action of strophanthin administered intravenously is similar to that of other members of the digitalis group administered orally, but far more rapid. (2) Strophanthin had in the series a decided effect in all cases with pulsus irregularis perpetuus. When the pulse rhythm was regular it showed an effect in only three instances out of ten, and this was both slight and transitory, except for the case of paroxysmal tachycardia. (3)



In desperate cases of the *pulsus irregularis perpetuus* type, strophanthin used intravenously will tide the patient over until digitalis orally administered has time to take effect. (4) In cases of the *pulsus irregularis perpetuus* type, the first effects are noted in twenty or thirty minutes, though the maximum may not be apparent for seven or eight hours. This effect lasts from three to ten days. (5) It does not seem advisable to give on any one occasion more than 1/60 grain, and this if repeated should not be done before forty-eight hours; 1/120 grain has given a maximum result. On the other hand, it may sometimes take more than 1/60 to produce this. (6) Two cases of paroxysmal tachycardia are reported with strophanthin administration, both followed by cessation of the attacks. It is not clear, however, to what extent the strophanthin was responsible for this phenomenon.

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**Iodids:** David J. Macht in the *Bulletin of Johns Hopkins Hospital* for

September writes concerning the iodids of potassium and sodium and the iodine ion, in their action on the heart and blood vessels. From his experiments, it is seen that the potassium ion produces a relaxation of the blood vessels, and a marked depression of the heart, that the sodium ion has a slightly stimulating action on the blood vessels, and also stimulates the heart, and that the iodine ion is a powerful stimulant to both the heart and blood vessels, as shown by its action in experiments on isolated germs. The stimulating effect of the iodine, however, is greatly inhibited in the intact animal by their chemical combination with the proteids of the blood, whether the chemical compound thus produced is a stable one, or whether it is a loose one, and slowly breaks up, setting iodine free, remains an open question. If iodine is set free, a stimulating effect is to be expected. The action of sodium and potassium iodids upon the heart and blood vessels can be best understood from the action of their component factors. Sodium iodide possesses no depressing property, for the sodium ion is a vascular constrictor, and a cardiac stimulant, and the iodine ion in so far as it is free to act, has the same action. Potassium iodide, on the other hand, clearly shows the depressing effect of the potassium ion on the heart and blood vessels, especially of mammals, not only on isolated organs, but also in the living animals. It is therefore not a matter of indifference which of the iodids is to be chosen for the purpose of depressing the circulation, as, for instance, in cases of an aneurism. This pharmacological analysis of the action of the iodids furthermore shows that so far as experimental evidence goes, the iodids possess no special virtue of lowering the blood pressure, but that the effect is really due entirely to the potassium, and could be produced even more efficiently by other potassium salts. He states, too, that a recent summary by A. Loehndorff and J. Schwalbe of the opinions of the most prominent German clinicians on the use of iodids in arteriosclerosis shows the weight of opinion as being unfavorable to the drugs.

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**Medical Conservatism.** Beverley Robinson in the *Medical Record* for August 1st presents a plea for conservatism in the treatment of disease. He states that no one knows better than he how his title sounds to many ears among practitioners. They say in heart or by words of mouth, "We do not want to hear again the twice-told tale. We want something new, up-to-date, an advance over the old, well-worn, obsolete in medicine. Give us the new serums or vaccines to prevent or cure disease, and not long-ago-medicines and formulas, that do not." He acknowledges their claims to be true, in a way, and states the wonderful results obtained through scientific medicine. On the other hand, are we to free ourselves from the recognition that very many diseases are not prevented, cured, or even favorably affected by these means? We must recur to drugs, at least to a few simple or combined ones. Added to faithful, watchful nursing, came one or two prescriptions that were at least inoffensive, and made to conform to the stomachal demand of the patient,

rather to some vain theory of the imagination. We should not be controlled by the daily outpouring of drug firms and advertisements, and we should also know that much that is written in the medical journals is, after all, very crude and based upon very slight experience. He calls attention, from another viewpoint, to the clinical effects of alcohol in disease, especially alcohol in pneumonia and diphtheria. No matter what the laboratory reports now state, great clinicians like Todd and our own Jacobi prove that in these diseases it is food and stimulant of the very best sort when life hangs as by a thread. He well remembers when Doctor Edward G. Janeway was critically ill with pneumonia several years prior to his death, he owed his life essentially to frequent taking of the best old brandy. It contains not only alcohol but possibly ethers valuable as additional stimulants. This is true also of the pure old wines, and the digestive organs weakened by acute disease are actively and greatly strengthened, and far more than with any drugs, by their use.

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**Exophthalmic Goitre.** In the August number of the *Monthly Cyclopaedia*, F. Graham Crookshank writes on the pathogeny and treatment of exophthalmic goitre. It is in the first place an irrational subdivision in the text-books, of treatment into medical and surgical, is also unsatisfactory, since the necessity for close co-operation, from the very first, between surgeon and physician, is indeed imperative. Though the art of medicine may be, as compared with that of surgery, "a thing of naught," he submits that the conventional prescription of a diet at once bland and nutritious, agreeable society, and a change to the seaside, do not exhaust the resources of the modern physician. As Musser states, the surgeon is apt to do too much and the physician too little in the treatment of exophthalmic goitre. Experience shows us that unless a vicious circle has been established, good results follow the discovery and removal of continuing causes for excessive activity of the gland, and we must seek to oppose the ill effects in the system of an excess of iodothyron, and at the same time check its further secretion. It has long been attempted to oppose the effects, or some of the effects, of thyroid secretion in the blood by giving digitalis, a drug which in this connection has little save custom and prejudice to commend it. The giving of *bella donna* is hardly rational, and such good as it may do perhaps results from its inhibition of secretion. But in physostigma we have a drug that in his experience controls tachycardia better than any other, and that appears generally to benefit the patient. Arsenic, too, is of aid and also potassium iodid, the latter having the sanction of Kocher, while Sir John Barr lauds the use of calcium salts. Sodium phosphates is certainly of distinct, even if of inexplicable usefulness, and both salicylates and hexamethylenamin often prove of service for obvious reasons. So far as glandular therapy is concerned, the use of thyroid substance is not to be recommended, but mixed cases, or cases in which myxedema is imminent, may perhaps be in a measure advantaged. But by far the most interesting problem clinically, is that which attends the remarkable results of the administration of thymus substance, especially in slighter cases of the nervous type. He has given it in almost every case that he has seen during the last three years, and is convinced of its utility. However it acts, the plain fact remains that 20, 30 or more grains a day will sometimes abolish exophthalmos and relieve tachycardia and other symptoms. To arrest hyperplasia he has personally found the inunction of the ointment of red iodid of mercury—a method he learned in India twenty years ago—of undeniable advantage. But it is sometimes painful if carelessly used. The physician must not regard operation as a *dernier ressort*, nor should the surgeon deem it the only rational method of dealing with the disease.

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**High Pressure, etc.** William F. Waugh in the September number of the *Medical World* presents a number of practical suggestions. As the remedy for high pressure he has long trusted his patients



to veratrin. This powerful agent reduces pressure directly, and lessens the causal factors by favoring elimination through all the emunctory channels. Insofar as the high tension may be due to the pressure of irritating toxins in the blood, veratrin is the remedy especial. No matter what contributory causes may be in operation, it is well to remove this one. He gives veratrin in doses of  $\frac{1}{2}$  milligram (1/128th grain) repeated every four, three, two or one hour, until he gets the pulse exactly as he wants it; then he gives enough to keep the tension there. He has given veratrin thus for three years with benefit, and not the slightest troublesome result. Even in weak hearts, as in the later stages of valvular disease, this remedy is useful, since in the small doses it is tonic to the cardiac muscle. He prefers the veratrin to Norwood's veratrum, because of the certainty, the speedy action, and the fitness for hypodermic use of the latter. He does not fancy the use of apocynum for high pressure. This valuable drug acts as a stimulant to the vasoconstrictors and is very useful when there is low tension, especially in the veins and capillaries—in anasarca, for instance. But it is too powerful for slight cases, and he saves it for those where digitalin has begun to weaken. There is not a drug in the Pharmacopoeia that requires such careful regulation of the dose by the effect on tension as does digitalis. Dujardin Beaumetz once said that the fear of digitalis was the beginning of wisdom as to the treatment of heart disease, with which statement he fully agrees. Yet it is our most valuable cardiant to those who appreciate its true uses. Very few realize the length of time digitalis action endures. This long-enduring effect is due mainly to digitoxin, and is not manifested when the safer digitalin is employed—or as it is commercially known, Germanic digitalin.

**Scarlet Fever.** In the *Therapeutic Gazette* for September, Samuel S.

Woody states that scarlet fever is amongst those diseases for which there is no specific treatment. Beyond stimulation, elimination, and the maintenance of feeding, the treatment resolves itself into the management of intercurrent complications. The most dreaded complication of scarlet fever is undoubtedly nephritis. The use of the milk diet, and the mild diuretics while there is fever does much to avoid its occurrence. The urine should be examined daily and if possible measured. As soon as albumin appears in the urine, vigorous treatment should be instituted. This must include: (1) Free purgation by magnesium sulphate in adults and larger children, and by castor oil in smaller children, say those under four years. (2) The hot pack. This should be used in varying frequency, from once daily to every four hours, and should be continued in use, until on four successive days the urine is negative. After this the packs should be gradually withdrawn, and the diet correspondingly increased. He considers the hot pack our most important means of combating nephritis, because of the vigorous skin elimination it causes. For the ordinary hot pack, we may substitute one given by the use of the electric heater or cabinet. (3) The use of diuretics. Potassium citrate alone or in combination is given routinely, and he certainly considers them worthy of use. In the later stages of nephritis when uremia is present, Bashain's mixture is substituted. In addition we may use caffeine, diuretin and infusion of digitalis. He never uses the latter as a stimulant in scarlet fever, but as a diuretic only. If the stomach be retentive, all medicines are given by mouth. During the acute nephritis an absolute milk diet is given and water freely. Later in the disease, say after three or four weeks, when there is anaemia and emaciation, even though albumin may persist in the urine, the diet may be increased by adding eggs, bread and butter and stewed fruits. Under such treatment uraemia should not supervene.

## NEW AND NONOFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies, 1914, and of the supplement to New and Nonofficial Remedies, 1914 (July 1, 1914), the following articles have been accepted for inclusion with "N. N. R.":

Abbott Alkaloidal Co.:

Strepto-Bacterin (Human): packages of 6 ampules each containing 100 million killed bacteria.

Slee's Normal Horse Serum: vials containing 100 cc.

H. M. Alexander & Co.:

Typhoid Vaccine.

Antiseptic Supply Co.:

Stypstick Applicators, Alum 75 per cent.

Arlington Chemical Co.:

Arlco Urease.

The Bayer Company, Inc.:

Cymarin, Tablets Cymarin, Ampoules Cymarin Solution.

Fougera & Co.:

Electrargol for Injection.

Greeley Laboratories, Inc.:

Acne Vaccine: package of 6 syringes each containing 12 million bacteria.

Colon Vaccine: packages of 6 syringes each containing 1,000 million bacteria.

Pyocyaneus Vaccine: packages of 6 syringes containing 1,000 million bacteria.

Gonococcus Vaccine: packages of 6 syringes each containing 500 million bacteria.

Pneumococcus Vaccine: packages of 6 syringes each containing 500 million bacteria.

Staphylococcus Albus Vaccine: packages containing 6 syringes each containing 1,000 million bacteria.

Staphylococcus Aureus Vaccine: packages containing 6 syringes each containing 1,000 million bacteria.

Streptococcus Vaccine: packages containing 6 syringes each containing 500 million bacteria.

Typhoid Bacillus Vaccine: packages of 6 syringes containing 1,000 million bacteria; packages of 6 syringes containing respectively 100, 200, 400, 600, 800 and 1,000 million bacteria.

Hynson, Westcott & Co.:

Urease-Dunning.

Maltine Co.:

Maltine Malt Soup Extract.

Memorial Institute:

Diphtheria Antitoxin, 10,000 units.

H. K. Mulford Co.:

Friable Tablets of Emetine Hydrochloride.

Hypodermic Tablets of Emetine Hydrochloride.

Antidysenteric Serum, in vials containing 50 cc.

Antipneumococcic Serum, Polyvalent, syringes containing 20 cc. and vials containing 50 cc.

Antistreptococcic Serum, Polyvalent, vials containing 50 cc.

Antistreptococcic Serum, Scarlatinal, Polyvalent, vials containing 50 cc.

Pyocyano Bacterin: packages of 4 syringes containing 50, 100, 200 and 400 million killed bacteria.

Typho-Serebacterin Mulford, Immunizing, syringes containing 1,000, 2,000 and 2,000 million killed sensitized typhoid bacilli.

Pasteur Institute of St. Louis:

Antirabic Vaccine.



**Schieffelin & Co.:**

**Acne Vaccine:** packages of 4 syringes containing respectively 5, 10, 20 and 40 million *B. acne*.

**Antimeningococcus Serum:** 30 cc. cylinder; 20 cc. vial.

**Colon Vaccine:** 2-vial packages containing 50, 100, 200 and 400 million killed bacteria.

**Gonococcus Vaccine:** 5 syringes containing respectively 50, 100, 200, 400 and 1,200 million killed bacteria.

**Scarlet Fever Treatment:** packages of 4 vials containing 50, 100, 200 and 400 million killed bacteria.

**Typhoid Combined Vaccine (Prophylactic),** vials and syringes containing three doses, 500 million killed typhoid bacilli and 250 million killed paratyphoid bacilli A and 250 million killed paratyphoid bacilli B, while the second and third dose each contain 1,000 million killed typhoid bacilli and 500 million each of killed paratyphoid bacilli A and B.

**E. R. Squibb & Sons:**

**Acne Vaccine,** boxes of 4 syringes containing 25, 50, 100 and 200 million killed bacilli, boxes of 2 syringes containing 50 and 200 million killed bacilli, boxes of 6 ampoules containing 10, 25, 50, 100, 200 and 500 million killed bacilli, with syringes, and boxes of 3 ampoules containing 50 and 200 million killed bacilli with a syringe.

**Bacillus Coli Communis Vaccine,** boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed bacilli. Also boxes of 2 syringes containing 100 and 500 million killed bacilli and boxes of 2 ampoules containing 100 and 500 million killed bacilli, with a syringe. Box of 6 ampoules containing 100, 100, 500, 500, 1,000 and 1,000 million killed bacilli, with a syringe.

**Bacillus Pertussis Vaccine,** boxes of 4 syringes containing 25, 50, 100 and 200 million killed bacilli. Also boxes of 2 syringes containing 50 and 200 million killed bacilli. Boxes of 6 ampoules containing 25, 50, 100, 200, 300 and 500 million killed bacilli, with a syringe and boxes of 2 ampoules containing 50 and 200 million killed bacilli, with a syringe.

**Diphtheria Antitoxin,** syringes containing 2,000, 3,000, 4,000, 5,000, 7,500 and 10,000 units.

**Gonococcus Vaccine,** 4 syringes containing 100, 200, 350 and 500 million killed gonococci, boxes of 2 syringes containing 100 and 500 million killed gonococci. Boxes of 6 ampoules containing 50, 100, 150, 350, 500 and 1,000 million killed gonococci, with a syringe and boxes of 2 ampoules containing 100 and 500 million killed gonococci, with a syringe.

**Meningococcus Vaccine, Curative,** boxes of 4 syringes containing 100, 200, 400 and 500 million killed meningococcus. Also boxes of 2 syringes containing 100 and 500 million killed meningococci. Boxes of 6 ampoules containing 100, 100, 500, 500, 1,000 and 1,000 million killed meningococci, with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed meningococci, with a syringe.

**Meningococcus Vaccine, Immunizing,** boxes of 3 syringes containing 100, 500 and 1,000 million killed meningococci.

**Pneumococcus Vaccine,** boxes of 4 syringes containing respectively 100, 200, 400 and 500 million killed pneumococci, boxes of 2 syringes containing respectively 100 and 500 million killed pneumococci, boxes of 6 ampoules containing 100, 100, 500, 500, 1,000

and 1,000 million killed pneumococci, with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed pneumococci, with a syringe.

**Pyocyanus Vaccine**, boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed bacilli. Also in boxes of 2 syringes containing 100 and 500 million killed bacilli, boxes of 6 ampoules containing 100, 100, 500, 500, 1,000 and 1,000 million killed bacilli, with a syringe.

**Smallpox (Variola) Vaccine (Glycerinated)**, each dose in separate aseptic sealed glass tube, with bulb and needles. Boxes of 5 and 10 tubes.

**Staphylo-Acne Vaccine**, boxes of 4 syringes containing 100 million killed staphylococci and 25 million killed acne bacilli, 200 million killed staphylococci and 50 million killed acne bacilli, 400 million killed staphylococci and 100 million killed acne bacilli, and 500 million killed staphylococci and 200 million killed acne bacilli; boxes of 2 syringes containing 100 million killed staphylococci and 50 million killed acne bacilli and 500 million killed staphylococci and 200 million killed acne bacilli, boxes of 2 ampoules containing 100 million killed staphylococci and 50 million killed acne bacilli and 500 million killed staphylococci and 200 million killed acne bacilli with a syringe. Box of 6 ampoules containing 100 million killed staphylococci and 20 million killed acne bacilli, 100 million killed staphylococci and 20 million killed acne bacilli, 500 million killed staphylococci and 50 million killed acne bacilli, 500 million killed staphylococci and 50 million killed acne bacilli, 1,000 million killed staphylococci and 100 million killed acne bacilli and 1,000 million killed staphylococci and 100 million killed acne bacilli, with a syringe.

**Staphylococcus Vaccine**, boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed staphylococci. Also boxes of 2 syringes containing 100 and 500 million killed staphylococci. Boxes containing 6 ampoules containing 100, 250, 500, 500, 1,000 and 2,000 million killed staphylococci, with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed staphylococci with a syringe.

**Streptococcus Vaccine**, boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed streptococci. Also boxes of 2 syringes containing 100 and 500 million killed streptococci. Boxes of 2 ampoules containing 100 and 500 million killed streptococci, with a syringe. Boxes of 6 ampoules containing 100, 100, 500, 500, 1,000, 1,000 million killed streptococci, with a syringe.

**Typhoid Vaccine, Curative**, boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed bacilli. Also boxes of 2 syringes containing 100 and 500 million killed bacilli. Boxes of 6 ampoules containing 200, 200, 500, 500, 1,000 and 1,000 million killed bacilli, with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed bacilli, with a syringe.

**Typhoid Vaccine, Immunizing**, boxes of 3 syringes containing 500, 1,000 and 1,000 million killed bacilli.

**Standard Chemical Co.:**

Radium Bromide.

**Waukesha Health Products Co.:**

Hepco Flour, Hepco Dodgers, Hepco Grits.



## **The Academy of Medicine of Cleveland**

### **COUNCIL MEETING**

The one hundred and twelfth regular meeting of the Academy was held at 8 P. M. Friday, September 18, 1914, at the Cleveland Medical Library. The president, J. J. Thomas, was in the chair, with J. E. Tuckerman, secretary.

Before the regular program of the meeting Wm. H. Humiston gave a report of a cause of pelvic disorder.

Four years ago the patient had pelvic disease with headache. It was diagnosed as a retro-displacement with chronic appendicitis. She had been married five years and had one child. A D. and C. was done and part of the left ovary removed, with the cystic right ovary. The appendix was also removed. A good recovery was made.

Six weeks ago, while in a moving picture theater, she experienced sharp, cutting pains in her left side. An ambulance was called. Hot applications were put to her side. Her brother, who was a surgeon, advised an operation. Examination showed the uterus hard and the abdomen distended. Upon opening the abdomen there was found a ruptured ectopic pregnancy. A quart of blood was removed from the abdomen. The tube on the left side was ruptured. The ovarian artery was ligatured, the ovum removed and the muscular layers united with catgut sutures. As there were only a few small cysts in the ovary it was not removed. There is a possibility that the woman may yet have a child. These things are of interest because they are rare.

The address of the evening follows:

#### **The Management of Psychoneurotic Patients, By Tom A. Williams, M. D., Washington, D. C.**

What do we mean by psychoneurosis? We shall try to show that in defining it we do not differ from clinical medicine. The best classification is by etiology. The search into the cause or psychoanalysis is often very difficult. A classification based upon the symptomatology might be as follows:

1. Hysteria.
2. Neurasthenia.
3. Hypochondriasis.

Psychoneurosis may be defined as that condition which is caused by suggestion. Or it may be termed a peculiar reaction of the individual to his environment. Different individuals may react in different ways to a given set of causes. Alcohol, for example, causes different reactions in different individuals. It is not the cause of the reaction but the makeup of the individual that is the important consideration.

In discussing the genesis of psychoneurosis the best way will be to relate some examples. The first case is that of a woman thirty-one years old. She had three children. After the birth of twins she was able to do some work in taking care of the children and giving music lessons. The last six months she has been ill; most of her attention has been upon her children. She was easily fatigued, worried, and could not concentrate. She was continually obsessed by problems, the chief one being her diet. Each meal occupied her two hours and she took about one quarter enough food for her needs. Hence the emaciation that resulted. She then visited her doctor, who prescribed more food for her. She worried about the doctor's orders because she could not make herself eat all he had prescribed. Then phobia of food resulted.

Her appetite was good until two months after he had seen her. This shows that the woman had developed phobia of food because of her scruples and desire to do rightly in following directions. This also illustrates how easily anxiety may result from medical advice. She showed other symptoms, especially cramps of the abdominal muscles, more marked when her attention was directed to her stomach. She recovered upon rational persuasion and observance of her food.

The second case is that of a farmer's son, twenty-two years old. He was determined to commit suicide. He threw himself into a creek, crushed and swallowed an electric light globe, took laudanum and made other attempts at suicide. He had to manage the farm after his father's death, and his brother and neighbors interfered with him. He went to the doctor with the complaint of stomach trouble. His bowels wouldn't work. He said he was better off dead and that was why he took laudanum. His school life was a source of worry to him, owing chiefly to his sexual life. He was bashful and said that girls were not dependable, and was afraid to make advances to them. He dreamed of neurotic situations and provoked diurnal emissions until he was eighteen years of age. Other boys teased him and said he could not stand up with them as their equal. He felt his hopeless mental inferiority, which he attributed to his masturbation.

The third case is that of tic, in a young man. He would be seized with attacks of bowing and grunting, accompanied by rapid contractions of the diaphragm. He lived in North Carolina and the tic came on whenever he thought of his trip to Washington. He was a patient of Doctor Thomas Martin. There was a disharmony of muscular function which was produced whenever his attention was directed to the idea which was associated with these attacks of tic.

The treatment of this case was to show him how to control the rectus abdominis muscle and the diaphragm. When he felt the tic coming he performed voluntary movements which prevented the tic taking place while he was doing this. This procedure cured him.

These are illustrations of gastro-enterological cases, the chief factor of which was a psychoneurotic one.

The fourth case is that of a lawyer, twenty-eight years old. He denied himself all society, gave up food, and twice tried to commit suicide.

He was distrustful of cure and said that they tried to cure him by suggestion and hypnosis. The physical examination showed a loss of weight. A review of his life showed that he had been made afraid when a child. Incidents of his childhood that scared him were such as one in which his uncle threw him into the water to make him swim. He was not pulled out until he was nearly drowned. He was also made to lie down in the snow to harden him, as his uncle told him, and a whip in the hands of his relative was a constant terror. These were the sources of his fear, which had now assumed the form of some unknown but haunting danger.

What is the mechanism of these fears? Why should the childhood fear of the lawyer, the fear of the farmer boy, the fear of the woman, and the nostalgia in the tic boy cause these symptoms? The responses to our environment have much to do with our acts and relations. Modifications of our acts are due to the conservation of energy. Destructive reactions become psychoneurotic.

How are we to get rid of these psychoneurotic responses? It is simple. The associative processes must be modified. To illustrate the treatment we shall refer again to the cases we have cited. The woman with the dyspepsia, the first case mentioned, was removed from home for two weeks, because her home held the conditions causing morbid responses on her part, which were her preoccupation and fear. So the new associations were made. There was a deliberate and slow relaxation of her diet. She was taught to exercise and later trained to perform difficult actions. In a few weeks she returned, a happy woman, to her husband and her work. Often in such cases as this the family physician is the best one to carry out the treatment. But with this woman the family physician could do nothing with the patient remaining at home.

In the case of the farmer boy it was shown that he could not cause dementia by masturbation. He was asked to look over his past life and see why he was ashamed. His only reason was that he thought he had to be ashamed and ought to consider himself inferior to others about him. He was then talked to every day and taught that he had no grounds for



his ideas. He was allowed the freedom of the hospital and not made to feel that he was watched and guarded. In ten days he went home.

The sexuality as such was not the main cause. Through his ignorance he could not adapt himself to his surroundings. Rectification of his false notions effected his cure.

When the source of the fear had been discovered in the case of the lawyer it was explained to him that his fear was habit. The plan of treatment was outlined to him and he was to be taught to reform his habits. Owing to his nervous condition and exhaustion sleep had to be given to him by hypnosis. Three times hypnosis was resorted to in order to give him sleep, but only as a temporary expedient. Then re-education of his fear reaction was begun. His fear reflexes and impulses were explained to him. After four days he went home for a week and then came back again. At the end of four more days he was cured.

In the treatment of the boy with the tic catharsis of course failed. What was necessary was re-education and this was the effective method that produced his cure.

In glancing over the method of procedure psychoanalysis is of value, but it is not all important or infallible. I have not found a case with an unconscious complex with symptoms of psychoneurosis. A morbid complex is a set of ideas with accompanying associations causing psychoneurosis. There is always, in my experience, a conscious morbid complex which can be ascertained if the patient is questioned and the history investigated. The farmer's boy was not unconscious of his masturbation and he had a whole set of conscious ideas. He was not aware, however, of the relation between his acts and their results.

Often hysterical patients simulate the conditions expected by the doctor. Here the doctor is at fault, due to the failure of a scientific attitude on his part toward the patient.

It is the psychological attitude toward life on the part of the patient that causes his psychoneurosis. A boy who is timid psychologically is so because he has been taught to inhibit the natural spontaneity of boyhood activities in play and in his relations with others. An innumerable series of events in his social reflex has made him timid. This is not due to the sexual groundwork. So analysis of this kind causes clarification of the patient's mind. A self-education on the part of the patient is thus made possible, when he is shown the means of remaking his attitude toward his surroundings.

In children as a rule the fault is with the parents. One boy, aged fourteen, who was called nervous, was diffident and inattentive at school. It took him two hours to dress in the morning and he dreamed by the hour. He came for treatment four times, one hour each time. The cause of his trouble was readily discovered. At three and a half years of age a little brother came, of whom he grew jealous and began to pick upon him. An aunt talked to him severely and told him that he would be damned for life if he continued in the way he was doing, and if he did not make amends for his acts. The boy was terrified. He developed a method of compensation by performing a long series of deeds, as dressing while lying on the floor, putting on and taking off his coat several times as he assumed difficult attitudes, and doing many other acts. The manner of treatment in this case is obvious.

A child eight years old had hysterical fits interpreted as ambulatory. There was a sudden cry and then running away in the greatest terror. This was due to fear of wild animals which he had contracted some time previously. He was reasoned with through his self-control and cured.

The realization of the situation on the part of the patient enables him to carry out the methods or acts of his own cure. It is this autotherapeutics on the part of the re-educated patient that effects the cures, and not the analysis.

Another point that we wish to emphasize is a denial of suggestion as a factor in the cure of psychoneurosis. It is ridiculous to deny the value of suggestion. There are so-called cures by the procedure of suggestion, as the cases of patients reported getting well by going to Christian Scientists, to the electric therapists, et cetera. Though the symptoms disappear, yet there is no permanent cure and relapses will occur. The patient is not taught new adaptation to his environment, but is deluded into thinking he is getting well with no effort or change of conditions on his own part.

There is no suggestion in psychotherapy. The patient should not be told that he is going to be cured, but he is allowed to find out for himself wherein he can modify his actions toward securing his own recovery. The procedure of suggestion is inferior to Christian Science, for you make the patient susceptible to other fresh ideas, while Christian Science denies the existence of disease entirely. Christian Science becomes a social enemy upon the ground that it denies the existence of disease. If we mean to treat psychoneurosis by suggestion we must admit that we are inferior to Christian Scientists, for they have the force of a religion behind them, while in suggestion we have nothing.

In conclusion let us see that the important feature is not the confidence inspired by the physician. If so, then the family doctor would be able to cure these cases under all conditions. Nor is it impressiveness that cures patients. I have no apparatus, no impressive manner and I go into each case as man to man and talk ordinarily to the patient. So in my own experience it is not due to impressiveness, nor to suggestion. It is due to the reformation of the psychological reaction of the patient to his environment. The best treatment is to proceed from analysis to the restoration of the patient's understanding.

#### Discussion of Doctor Williams' paper.

In opening the discussion H. H. Drysdale said that he could not understand how one can re-educate a psychoneurotic patient without suggestion. You must speak to the patient and with that there comes in an element of persuasion. "I believe that psychoanalysis has done more than any other method. The psychomechanism is not benefited by a mere change of place. A mental catharsis for the patient is necessary. Have you ever met an hysterical female who is normal in her sexual reaction?"

In replying to these remarks Doctor Williams dwelt with the sexual question first. "Sexual life is a great cause of psychoneurosis because sexual life is not dealt with scientifically. So the opportunity to form morbid reactions is very great, due in large measure to the pedagogues and parents who cover all these things with shame. We are all morbid and psychosthenic under certain conditions. An individual with dull perceptions cannot be psychosthenic, but he is very likely to be hysterical. The physical factors are important.

"By suggestion I mean the reception by the patient of ideas without any reason of why they are received. There is no time syllogism. The conclusion is accepted because you are told to accept it. The foundation is therefore not solid in suggestion."

C. F. Hoover brought out the idea that the patient should be persuaded to show the doctor the patient's point of view.

Then the important procedure is to get the patient to see the doctor's viewpoint.

Taking up this thought Doctor Williams stated: "You must know the patient's point of view. You must talk from the patient's premises. The patient knows his own psychology better than the doctor does.

"The emotions are beyond the control of the patient alone. A traumatic neurosis, for example, cannot be gotten out of the patient's mind until the subject is gone over again and again. After one is in an emotion it is uncontrollable. He is obsessed and fixed with the idea and it takes much time to get rid of it."



W. H. Humiston asked Doctor Williams if he had been successful in treating females of suicidal mania who had any marked pelvic deformity.

Doctor Williams replied to this, that if there were a pelvic deformity then the case was not one coming under the classification of psychoneurotics, and so would not be treated by psychotherapy.

W. A. Searl, in talking from the standpoint of institutional men, said: "The institution men of today agree that patients do not need a long time in sanatoria unless they will not co-operate with the plan of treatment."

Doctor Williams, in regard to institutions, remarked that there were institutions and institutions. Send the patient not to the institution, but to the man. Some patients need institutional care and cannot get along with the family physician. It is this need of the patient for added support from outside sources that the institution can supply.

G. W. Crile complimented Doctor Williams on his address and voiced his pleasure in having heard him. He then asked if Doctor Williams had attended a large enough number of patients with exophthalmic goitre or who suffered from post-operative psychoneurosis to be familiar with this class of patients.

In response to this inquiry Doctor Williams stated that Doctor Mayo said he had performed many operations by which the patients were not benefited because the cause of their trouble was not an organic lesion but a psychoneurosis. "I have observed several cases, among which was a case of iliopsoas spasms following an appendectomy. This was cured by psychomotor treatment. Another case was that of a woman who had had innumerable operations and had become hysterical as a result. She was cured by her own doctor by the use of psychotherapy.

"A third case of post appendectomal hysteria was treated and cured by re-education.

"In cases of hypothyroidism with psychoneurosis, improvement in the hypothyroidism occurred with the treatment of the psychoneurosis. Sexual sociological conditions were at the seat of the trouble in this case. When after analysis this condition was attended to the woman got rid of her difficulties. Her pulse went down from one hundred thirty to eighty. With proper feeding there also followed an increase of weight."

Nathan Rosewater in some remarks said: "There is a true or false judgment necessary to make our environment seem right or wrong to us. It is not so much a re-education of the will as a true re-education of the patient. The patient must be taught what is true and false, and then he will co-operate with the doctor.

"This idea was applied in the case of an epileptic girl," continued Doctor Rosewater. "As the girl got older the fits came more often until when she reached High School she was so bad that she had to be taken out of school. It was envy and fear that brought on the spells. Any emotional excitement also caused them. She was reasoned with and gotten to take an opposite view of things from that which she had. Instead of hating other children she was encouraged to take part in their pleasures and in everything they did. She went home and worked around the house with a changed attitude, and got well. This was due to the appeal to her reason to take a courageous view of her condition and to use the stimulating functions of life. Thus a normal individual was produced.

"Another case was that of a woman sixty years old who had eructations closely following each other for nine months. The cause or the beginning was worry over a son who was in trouble. At one time a diagnosis of appendicitis was made. When her attention was distracted as by tapping her teeth there was no eructation of gas.

"She was given bromid of sodium every few minutes in small doses. But by a mistake in following directions a hundred fifty grains were taken in three days. Citrate of magnesia was then administered and in one day she was all right, with no recurrence of the trouble."

Doctor Williams stated that he did not think much of drugs in the treatment of psychoneurosis.

John P. Sawyer laid stress on the thought that there is a necessity for the application on the part of the physician of rational physiology. It is an important part of the physician's work to get the co-operation and understanding of the patient. Sympathy with the patient, insight and patience will give a sound basis for success in this field of endeavor.

In response to the opinion expressed that the reason family physicians are unsuccessful in their treatment of psychoneurosis was because they were too mercenary as a rule and could not afford to spend the time with such patients as was required for successful treatment, Doctor Williams said: "It pays to take the time to cure these patients. When we think of the time we spend with a typhoid patient it is not less important for the good of the patient that we spend as much time as is required in his recovery from psychoneurosis."

Doctor Williams' paper will appear in full in the November issue.

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## CLINICAL AND PATHOLOGICAL SECTION

The one hundred third regular meeting of the Clinical and Pathological Section of the Academy of Medicine of Cleveland was held Friday, October 2, 1914, at the Cleveland State Hospital, Newburgh, at 8 P. M. A. W. Lueke, presided with Secretary H. O. Ruh.

The program of the evening follows:

### **Dementia Precox, By G. H. Reeve, M. D.**

Dementia Precox is claimed by some men to show hereditary symptoms. The patient cries but he has no wish or desire to fulfill. There is no longing for freedom nor discontent. The disease may be divided into three types, the catatonic, the hebephrenic, and the paranoid.

Illustrating the catatonic type was shown a woman of Russian nationality, the onset of whose trouble began in 1911. She could not eat or sleep and on admission was quiet and depressed. She kept her head bowed down, was apprehensive, and spoke in a low manner. Her judgment and reason were defective and she became quite neglectful of her person. In 1912 she was melancholy and had to be urged to eat and sleep. She was taken home on a trial visit and later had to be brought back. In April, 1914, she was again taken home for a visit, but became very careless and suspicious and since being back in the Hospital has neglected everything. She has also a goitre which probably has some effect upon her general condition. She is very quiet, curls up in bed and holds her arm over her head in a very characteristic manner.

Another case of this type is that of a young man. He is worried, seems indifferent but sleeps fairly well. He does not know why he is here. He says that while he was in the navy he was put into a brig and brought here. He has been catatonic. He says he is nervous because he has been locked up. He was resistant when anything was done for him at first, but now he shows some desire to go home and is on the way to a temporary recovery.

The third case is a common form of precox. This man was admitted in June, 1911. He smiles continually and has the appearance of a defective individual, answering questions in a childish manner. His physical examination is negative. He will pick up things that do not belong to him while he is going through the halls, and takes delight in running about and eluding his pursuers. He has little education and his case is suggestive of a congenital defect.

The fourth case illustrates the paranoid type of precox. This patient says he has had his mind broken up by a large number of people. He says



he was picked up on the street and taken to jail. There is one man whom he charges with having abused him and who is responsible for his present state. This man talked about him behind his back and tried to run him down, and wanted to use him for his own advantage. He says that the people who were abusing him took his mind out of his head by pounding his head. They wanted to see how much his mind would stand. The only reason he could give for this persecution was that these people must want to make fools of themselves, for they could not gain any knowledge by their treatment of him.

The family history in this case is negative. He was a machinist and admitted in June, 1914. The onset of his trouble began at twenty-one years of age with suspiciousness and nervousness. He was brought in by his father clean and tidy of person and very quiet. In his mental examination his answers were given quickly and to the point. He has active aural hallucinations besides the idea that people were breaking his mind by making impressions upon him. He tried to get away from this one man who persecuted him, but would always come in contact with him no matter how hard he tried to avoid the meetings.

He has no real explanation of his troubles. The ideas of his persecutions are loosely organized and this is one of the reasons why he is classed as a paranoic precox.

#### **Maniac-Depressive Psychoses, By Katharine R. Moses, M. D.**

In former times this condition was called circular insanity. On first admission to an institution if the person was excited his case was diagnosed as mania, and if depressed as melancholia. In time the patients were discharged as recovered and later readmitted in the other condition.

The principal cause is heredity. Very often a cause such as overwork, or others as family quarrels, mental or physical stress would be given, but back of it all is found the constitutional defect.

Maniac-depressives are classified into three groups.

- (a) Maniacal form.
- (b) Depressive form.
- (c) Alternating form.

The symptoms of the maniacal form are flight of ideas, psychomotor excitement and emotional excitement. In all normal thinking there is a well defined end, the goal of idea, and all other ideas are subordinated until this idea is reached. In abnormal thinking there is no goal idea. There is wandering from one point to another, the ideas however may be coherent in a fashion and connected with one another. It is easy to see the connection of the ideas if they originate from the outside, but when the thoughts originate from within the coherency is not so easily discerned. The three symptoms noted above are not always of the same intensity and the flight of ideas may be out of all proportion to the other symptoms, or one of the other symptoms as psychomotor excitement or emotional excitement may predominate.

The requests of the patient are many and frequently unreasonable and yet if not complied with the patient will fly into a rage and accuse the person of mistreating them. A tendency to rhyme is not infrequent. It is interesting to see how a patient will catch a word or phrase not intended for them and introduce it into their conversation. Consciousness may be clouded and disorientation be present. Hallucinations are not infrequent, but they are usually simple and transitory. Delusions may be present, but are not fixed, which are usually of a grandiose character and yet lacking in the element of extreme improbability and ridiculousness of the demented. In psychomotor activity the patients are unable to keep quiet. They run, jump, tear their clothing, break furniture, and destroy anything within their reach. Their excitement is so great sometimes that they do not take time to eat, destroying the food placed before them and then often telling their friends that they have not been given anything to eat.

The depressive form is marked also by three well defined symptoms, each opposed to the corresponding one in the maniacal stage. The first symptom is difficulty in thinking. The second is psychomotor retardation, and the third emotional depression. These symptoms as in the maniacal form manifest any degree of severity and may be out of all proportion to each other. In the mild cases or the simple retardation they speak slowly and in an undertone. They move about slowly and are incapable of doing any kind of work, sitting around with their hands folded. Emotionally they may be depressed, but the facial expression does not indicate it. There is no clouding of consciousness and orientation is present.

In more extreme depression the patient takes no interest in anything. If spoken to he will not reply for some time if he answers at all. In this condition the patient is often self accusatory, thinking that he is responsible for all the sins of the world. He feels that he has committed a great sin and is forever lost.

Physically there is nearly always constipation, coated tongue, poor appetite, loss of weight, and disturbed sleep. The patient may become stuporous, will not speak and lies in bed for days at a time. During all this time he may be suffering from the most dreadful delusions and hallucinations. These can seldom be learned until after the patient recovers. Frequently there are complaints of severe pains in some part of the body, such as gastro-intestinal or genito-urinary.

The prognosis for the individual attacks is good, but after a varying time for recovery from a single attack another is very likely to occur. The prognosis for an ultimate recovery is poor.

In the differential diagnosis the material type may be confused with the excitement of dementia precox. The signs of deterioration in precox will often make the diagnosis easy, but in many cases it requires time and a history of repeated attacks to clear up the diagnosis. In catatonia the flights of ideas are not typical, the incoherency being out of all proportion to the excitement. In the maniac-depressives the depression is a disorder of the emotions, with difficulty in thinking. There is psychomotor depression, inactivity, seclusion, slowness of movement, speech is slow and often inaudible or the patient may be mute. The patient is delusional and self accusatory, often hypochondriacal or engrossed in hallucinations. There is usually no clouding of consciousness, but the patient often refuses to eat, becomes emaciated and constipated. A characteristic symptom is the periodical occurrence. The onset takes place from the ages of twenty to thirty years. In sixty to eighty per cent there is an hereditary taint.

The involutional melancholia occurs later in life, in women from forty to fifty years of age and in men from fifty to sixty years. Heredity accounts for from forty to fifty per cent of the cases. In this depression there is apprehension and anxiety with retardation more apparent than real depression. Negativism and muscular tension are associated with the type and the face is either expressionless or grimacing.

There are no pathological findings characteristic of this disease.

The treatment of the mild cases of Maniac-Depressive Psychoses requires institutional care because of the tendency to alcoholic or sexual excesses. More excited cases must be guarded against exhaustion either from lack of food or sleep. For insomnia hot milk is given or hot packs, prolonged baths, hypnotics such as veronal or paraldehyde. Hyoscyamus may be tried. As a prophylactic measure an analysis should be made in order to find the cause and when the patient recovers he should be directed as to his future conduct and means of caring for himself.

The first case is that of a woman twenty-eight years of age who illustrates the course of the disease. She was admitted in July, 1909. There was no history of insanity but a history of alcoholism. She recovered from this attack and went home for four years. She was recommitted in 1913. She was very much depressed, sat around with her hands folded and was a typical depressed type. But last summer she became excited and at times was violent. There is no marked change in her condition now.



The second case is that of a woman thirty-five years old who was admitted in 1904, shortly after the death of her husband. Three years later she was discharged. In 1908 she was recommitted and again discharged. This last summer she was again brought in and was quite excited. Later she became quiet, which was followed by a spell of great excitement. For the last two days she has been fairly quiet.

The third case illustrates the flight of ideas. She has been admitted and discharged twice and is here now for the third time. She has been restless, violent and very much excited, throwing things and tearing her clothing.

### **Intoxication Psychoses, by G. Cameron Stewart, M.D.**

Korsakow's Syndrome consists of a certain group of symptoms any one of which may occur in other syndromes. Intoxication psychoses are not due to the primary toxicity of alcohol, but to the secondary intoxication products which result from the long continued use of the drug.

There is a feeling of well-being and a desire to be agreeable. There is amnesia, falsifications, confabulations, and pseudo-reminiscences. The predisposing causes are general states of malnutrition, infections, mental stress and shocks. Alcoholism added to this furnishes the exciting cause. The condition is more frequent in males because of their greater use of spiritus fermenti. Females are the greater sufferers. There is a selective affinity of alcohol for different tissues in the two sexes. In females neuritis is more marked and the mental changes are not so prominent. But in the male the mental changes are more marked than the neuritis.

The pathology of the condition shows changes in the cells, increase in the neuroglia, infiltration of the vessel walls by cells, and milary hemorrhages into the basal ganglia. Degenerative changes in the central convolutions and in the frontal and occipital convolutions occur. There is also degeneration in the white fibers of the posterior tracts of the cord. The anterior horns in addition are involved with parenchymatous changes in the nerve trunks.

The onset is slow, with general irritability, vague apprehension, numbness and pricking of the skin of the extremities. Marked tenderness of the nerve trunks and muscles is present. The acute delirium is accompanied by sensory deceptions. When this subsides it leaves a disturbance of impressionability and memory. The falsifications are resorted to in order to fill in the amnesia.

The neuritic symptoms after the mental changes, are three in number—motor, sensory, and ataxic. The motor symptoms are paralysis of the flexors of the ankle and extensors of the toes with foot drop, and paralysis of the extensors of the wrist and fingers resulting in wrist drop. The anterior tibial nerve and the radial branch of the muscle-spiral nerve are the ones involved. The sensory symptoms present the stocking and glove areas disturbed in the tactile and pain sense.

The ataxic symptoms are rare, which consist mainly of numbness to severe pain. It is rare to find the sphincters affected and the cranial nerves are rarely involved. In almost all of the patients the active delirium depends upon the more or less clouding of the consciousness. Illusions of hearing are frequent and likewise hallucinations. These acute symptoms give way later to disturbance of impressionability. Memory is the fundamental faculty of mind. The ability to recall depends upon the anatomico-physiological connection between one neurone and another as well as between nerve centers. The dendrites and collaterals show the first effect of toxication of alcohol. Partial or complete destruction of the collaterals occurs.

The mental symptoms are based upon the amnesia. The extent and permanency depend upon the impairment of the anatomico-physiological connections between cells and their centers, and also upon the general destruction of nerve cells. Amnesia may be classed as antero and retrograde. The antero defects are most pronounced. Memories for events

occurring after the onset are poorly recalled and sometimes entirely lost. The retrograde type is usually present. The more recent and less stable memories are the first to be lost. Falsification and confabulations are used to fill in the amnesic gaps. A fanciful and immediate past is attained by the individual.

The general emotional tone is increased with uniform elation. There is a disorientation as regards temporal and spatial relations. Upon insight into a part of the true condition there is remorse and depression. The course of the psychosis is long. There is usually a gastrointestinal disturbance, cirrhosis of the liver, myocardial and renal lesions. Recovery, if it takes place, is long and incomplete, with a defective memory usually permanent. The treatment consists mainly in hydrotherapy, massage, electricity, and care of the general nutrition.

The first case illustrating this psychosis is that of a woman fifty-four years of age, married, and a dress-maker by occupation. Her family history was negative. She has two half-brothers. Her father was killed in the war of the rebellion. Her personal history reveals her marriage at seventeen. She had one child, which is now dead, and three miscarriages. Her first husband died and four years later she married a saloonkeeper. At the present time she is unable to recall her past history.

She had cramps in her legs, with pain in the knees, and could not walk. Since her admission she has been confined to her bed. There is paralysis of both legs with a foot drop. The right arm is free from paralysis, though the left is affected. The muscles of her body are soft and flabby. The circulatory and respiratory symptoms are normal. The patient is helpless in bed. The right leg is semiflexed upon the thigh. The superficial reflexes are retarded while the deep reflexes are gone entirely. The sensory symptoms show no vertigo. She suffers from contractures of the middle and little fingers of the left hand, and with cramps in the legs. There is hypersensitiveness in the extremities. The mental examination shows that she can remember but little. Now, however, she can remember what she had for supper. The diagnosis was made upon the presence of Korsakow's syndrome.

The second case is that of a man of fifty-four who says he is thirty-three. He was admitted in October, 1913. He was quiet, pleasant, and agreeable. His consciousness was clouded and his memory gone for time and events. He has a history of addiction to alcoholism. There are no contractures. The pupils are sluggish in their reaction. The treatment of this man consists in cutting down the alcohol until now he gets very little. He can work, eats and sleeps well, and his physical condition is good. The diagnosis of this case was a Korsakow's psychosis.

#### **Discussion.**

In the differential diagnosis in the case of the woman with Korsakow's psychosis from hysteria the points of importance are that she has no memory for recent events, pseudo-reminiscences are present, with fabulations and the history of alcoholism.

#### **Presentation of Cases, by A. G. Hyde.**

Paresis is general paralysis of the insane with an organic disease of the brain. One great cause is lues contracted ten or fifteen years back. The first symptoms are manifested by the patient showing some poor judgment, as in bad investments. There is a gradual change in his character and it is in this early stage that much harm is done. From quiet, sane people they change their manner of living, pick up questionable associates, spend their life earnings in foolish speculations and reduce themselves to paupers. The other day a man came in who is an example of this characteristic. He had spent four thousand dollars foolishly, took a girl to a dance and after the dance tried to seduce her. He came in here shortly after.

The disease may be divided into three types, the prodromal, full development, and terminal stages. The symptoms of the first stage begin with defective memory and carelessness about the personal appearance. The



individual will not give an account of himself and delves into wild speculations. This may go on for a year and then he may have an epileptic seizure which brings him to the second stage or that of full development. In this stage there is an exaggerated egotism and feeling of well-being. Sometime during this period he is committed to some hospital. The third stage is marked by untidiness in appearance, more frequent convulsions and a general demoralization. He finally succumbs to an intermediate disease or to a convulsive seizure. The duration of the disease is from two to three years. The prognosis is extremely bad.

The pathology of the condition is not marked. There is congestion of the meninges and an increase of tissue as in the capillaries, with an actual shrinkage of brain substance.

The first case is that of a physician who had been here for five years. He is of the demented type, is stupid and depressed. He says very little and seems to be resigned to his condition.

The second case is that of a man with exaggerated ideas. He attributes the fanciful idea that he has poison as the cause for his being here. He says he has lots of money, owns several banks and transacts a large business. He talks in a rambling and incoherent manner with no clear or reasonable ideas.

The third case is that of a middle aged man who is more talkative and active. He says he would like to be home now for his home is just new and he wants to run it the way it ought to be run. He will not tell how much his home cost but he has been selling hardware and he says his business has increased wonderfully. He went home one night, he said, to put on his shoes and they brought the shoes out here. So he came out for them and as soon as he gets them he is going back home again. He says he has saved more than seventy-five thousand dollars by working night and day and they are waiting for him at home now.

This man is of the depressed type, having gotten his infection twenty years ago. One of the early symptoms in these cases is the Argyll-Robertson pupil, which is present in forty to forty-five per cent of the cases.

The fourth case shows a markedly deficient speech. This man shows a positive spinal fluid. The only cases that show a positive spinal fluid are those of paresis and tabes. The cell count varies from twenty to forty or fifty. This man has been treated by the Swift-Ellis method. Eleven per cent of the cases in this hospital suffer from paresis.

#### **Presentation of Cases of Paranoia, by R. G. Grossman, M. D.**

This case is that of a woman who was admitted in September, 1911. She expects to get money from the Rockefellers because she is related to them in the fourth degree. She was rather resentful that she was brought before the meeting to be quizzed as she had told her story all before many times. She does not know why she is here and says she is not insane.

The second case is that of a man who blames Mayor Baker for having him sent here, but more especially some doctors in Cleveland and Detroit. He says he owns the Ford Automobile Works in Detroit. He asserts that the people who are keeping him here are gaining millions by it. He has had hallucinations of hearing quite often.

The third case complains that he has to go to hell because of Doctor Hyde. He came out in an automobile and then they wouldn't let him go. He feels that he is persecuted by the profession because he has no relatives.

#### **Presentation of a Case of Multiple Scleroma, by A. G. Hyde.**

This man has mental symptoms though he was sent here as a case of paresis, which of course is incorrect. Multiple scleroma is of slow onset, with an etiology that is post infectious. It may follow trauma or shock.

This man is aged forty-five with a history of a slow onset of the process. He came in last July after being at City Hospital for two months. The symptoms he shows are oscillating of the eyes, defect in his speech,

weakness of the lower limbs and slight Romberg. The pupils are normal. There is a marked Babinski elicited from both feet. The prognosis is promising in long remissions. The treatment is with potassium iodide and salvarsan.

### Report of Swift-Ellis Treatment to Date, by G. H. Reeve, M. D.

Since the first of January, 1914, there have been twenty-four cases of paresis under treatment. These cases are divided, according to treatment, into two classes. The first, seventeen in number, are those who have been treated according to the regular Swift-Ellis formula. The second, seven in number, have been given interspinous treatments of fifty per cent salvarsanized serum. In no case in which more than two treatments were given have the laboratory findings shown an increase in the number of cells in the spinal fluid, or a more marked reaction of the blood or spinal fluid to the Wassermann. The Lange has been done on so few of the fluids that no report of that reaction can be made at this time.

Clinically, I have classified the cases as follows:

Failing, Unimproved, Stationary, Improved, and Much Improved. Of this latter class we have three cases who have taken the Swift-Ellis treatments and two who have been given the serum therapy. Three patients have received but one treatment, so that it seems advisable to classify these as failing, unimproved, and stationary.

The comparative percentages are as follows:

Swift-Ellis			Serum Therapy	
Failing .....	11%	2	28.5%	2
Unimproved .....	5%	1	28.5%	2
Stationary .....	29%	5	14.2%	1
Improved .....	35%	6	0	0
Much Improved.....	17%	3	28.5%	2

Average No. of doses,  $3\frac{1}{2}$ .

No. of cases, 17.

Average No. of doses, 3.

No. of cases, 7.

Upon sixteen occasions the per cent of serum was raised above fifty, often going to seventy-five per cent. The effect of this concentration of the serum was invariably unfavorable, so that the experience of this Hospital in this respect is not that of \*Doctors T. R. Boggs and R. R. Snowden.

At present two of our men have resumed their former positions in life, while the third hesitates to return to the City Farm, his home prior to coming to this institution.

\*Arc. Int. Med. 1914, vol. XIII, p. 970.

### Some Observations Noted in One Hundred Cases of General Paralysis of the Insane, in Married Men, Their Wives, and Children, by Arthur G. Hyde, M. D., Assistant Superintendent, Cleveland State Hospital.

Doctor Hyde's report covered one hundred of the cases admitted during the last four and a half years. These men were selected from the total number because they were married and had wives and children that were living. Since the serum methods of diagnosis have been used there is now little doubt that syphilis is the underlying cause of general paralysis of the insane. Further evidence has been furnished by Noguchi, who in 1913 showed the presence of the spirochaeta pallida in the brains of paretics.

By means of the Wassermann reaction latent and unrecognized syphilis can be discovered and be given treatment. Paretics give practically one hundred per cent positive Wassermann reactions. The history of the wives and children of these men was obtained together with blood tests.

The results of the information obtained bears out the appropriate



designation of syphilis as one of the three plagues. It has a murderous effect on the offspring, killing them before birth, during the first few weeks of life or later. The nearer the infection is to conception the greater the danger of abortion. If the child reaches full term luetic dystrophies are commonly seen, as little resisting power, small bodies, and early death. Others that live are susceptible to tuberculosis, rickets, and other infections. The prognosis of hereditary syphilis is bad with the impaired development and diminished resistance characteristic of such children.

It is shown by statistics that paternal heredity has the lowest mortality of thirty per cent. Maternal heredity shows sixty-five per cent mortality, while mixed heredity produces eighty per cent. The observations gathered at the Cleveland State Hospital showed a mortality from mixed heredity of nearly ninety per cent.

The ages of the one hundred ranged from twenty-eight to sixty-one years, the average being forty-eight. From seventy per cent of the cases a satisfactory history of the time of infection was obtained. The average cell count was thirty-two. Twelve of their wives showed a positive serum reaction, none of whom were aware that they had syphilis. These twelve women gave a history of forty-nine pregnancies, forty-four of which resulted in death, with five living children. There were from two to four miscarriages before the birth of these five children. The children presented well defined dystrophies.

The remaining eighty-eight wives gave a history of two hundred one miscarriages and still births. Forty-six of these women were the mothers of all the children, and gave a history of one hundred sixteen miscarriages and still births. Serum tests were done on one hundred sixteen of the one hundred thirty-four children. Thirteen children showed a positive Wassermann reaction, and these children ranging from two to twelve years of age showed some of the dystrophies, while none of them had enjoyed good health. The one hundred three children with negative serum reactions presented varying types of health, the majority being below normal, physically. Of the remaining forty-two wives twenty-eight gave history of eighty-five miscarriages and still births, with no living children. The remaining fifteen wives had never been pregnant.

These observations show the need of a more routine use of the Wassermann reaction in examinations where there is the least doubt of an infection. A few municipal laboratories in our large cities are making Wassermann tests, and they are being made in some of the larger hospitals of the East. It is only a question of time until the general population will be so examined.

An early diagnosis of the disease is necessary, which is possible with the Wassermann tests, and our treatment is made more effective by treating patients until these tests show they are cured. By intelligent uses of these means we may abolish further danger to parent and protect the future offspring.

#### Discussion.

H. N. Cole said: "We have all gained by hearing these papers and it is a striking lesson to us of the ravages that lues has made among us. It is certainly very important that an early diagnosis should be made and this point cannot be emphasized too strongly. Then it should be impressed upon the patient that a long treatment will be necessary before he can be cured.

"Salvarsan and neo-salvarsan are good, but there is the objection that the patient will not come back after one injection. Mercury should be used along with the salvarsan. I would like to see neo-salvarsan given up, for we are too much inclined to give the patient a shot and let him go with no further treatment.

"The diagnosis is very important and with the dark field illuminator the diagnosis within two or three days after the infection is possible.

There is no municipal laboratory in Cleveland now, but at one of the hospitals the men would be glad to do Wassermanns. In the treatment of old luetics it is best not to use the Swift-Ellis treatment at once. In the majority of cases this procedure will bring down the spinal fluid cell count and clear up the blood."

H. J. Gerstenberger stated that the Department of Health is planning to include a Wassermann laboratory in its equipment.

Doctor Hyde expressed his gratification at the number of physicians who came out to the meeting. He said: "It is a pleasure to have the doctors with us to-night. We shall be glad to show any of you around are sent to the State Hospital we shall be glad to have you follow up your cases here."

### ACADEMY MEETING

The one-hundred and thirteenth regular meeting of the Academy was held at the Cleveland Medical Library, Friday, October 16, 1914, the President, J. J. Thomas, in the chair.

The program was as follows:

1. **On the Teratological Condition Known as Sympodia, by N. W. Ingalls, M. D., and J. J. Thomas, M. D., Cleveland.**

The monsters collected together under the class name of Sympodia are characterized most conspicuously, as the name implies, by a fusion of their lower extremities. While monsters of this class were perhaps recognized by the ancient Greeks, nevertheless it was not until well into modern times that we find anything approaching an accurate description of them, or an effort to explain the condition on an embryological basis. It was not until the time of Geoffrey St. Hilaire that the various grades of Sympodia were separated and clearly defined.

Sympodial monsters are relatively rare, constituting roughly about one per cent of all monsters. The condition seems to be encountered but rarely among animals, although it has been observed in calves. The malformations that are common to all grades of Sympodia consists of fusion of both the bones and the soft parts of the pelvis and of the extremities as well. This occurs in such a manner that the corresponding parts on either side meet in the middle line and unite, so that the limbs are united by what in their normal position are the lateral borders. To put the normal legs in the same position would require that it be rotated outward through an angle of 180 degrees. As a result the leg can be flexed ventrally upon the thigh and the thigh in the same manner upon the trunk. The pelvis is never properly developed, being small and its cavity diminutive or entirely wanting. It is usually only loosely attached to the vertebral column. The spine may show faulty developments as well, and the number of ribs may be either increased or diminished, on one or both sides.

Serious visceral defects accompany the condition; atresia ani and recti is almost invariably present, and there is frequently occlusion of the gut higher up, often in the sigmoid. The external genitalia are practically never developed, and the internal organs of reproduction are always markedly malformed, if not entirely wanting. The urethra is almost always absent, and the rest of the urinary tract is usually malformed in some respect. The most constant anomaly found is the presence of but two vessels in the umbilical cord, one artery and one vein. The artery is not one of the two umbilical arteries usually found, but is an omphalomesenteric artery, an artery of the yolk sac. We will now consider the difference in the extremities of the various kinds of Sympodia.

Sympus dipus represents the mildest grade, and the one in which the defect is least and the limbs most complete. It is characterized by the presence of ten toes. The pelvis is most complete and the spine most perfect. Two femora are present, the heads near together and directed more or less forward, depending on the relations of the acetabula. Their lower ends are close together and the patellae lie on the lateral or dorso-lateral



aspect of the limb. Two tibiae are found in the leg and between them the two corresponding fibulae.

Symphus monopus has a wide range of variations and includes forms having from one to nine toes, and the findings vary accordingly, from the slightest malformations of symphus dipus to the extensive deformities of symphus apus. In the pelvis, in the mild grades, there is fusion only of the ischia and pubes, but in the higher grades there occurs a fusion of the ilia as well. For this reason it can be seen that there is a progressive decrease in the size of the pelvis and in the size of its cavity. The acetabula are more closely approximated and in the higher types there may be only a single cavity. The femora may be separated or fused by their diaphyses, or, either, only the upper or the lower end may be distinctly doubled. Two patellae are usually found and these are more dorsally placed than in the case of symphus dipus. The tibiae may be single or double and the fibulae are usually absent. If present they may be represented by a single bone situated behind and between the tibiae. The greatest variation is found in the foot. The fusion may involve only the calcanei, the cuboids and the fifth metatarsals and phalanges, or in more marked cases there may be deformities and reductions in the number of tarsal bones and toes. Corresponding defects and fusions are found in the muscles and nerves.

Symphus apus represents the most severe grade of symphydial deformity and is the typical "siren" or "mermaid foetus." The pelvis is very small and often devoid of cavity, and there is usually but one acetabulum, dorsally placed. The femur is apparently single, its head corresponding to the condition of the acetabula. Its lower end shows two or three condyles. One or two patellae are situated dorsal to the knee joint. The only bone in the leg is the tibia, which tapers rapidly to a point. There is marked malformation of the muscles of the leg, the only ones present being those supplied by the lumbar segments. Extensive malformations of the spine, especially in the lumbar and sacral regions, is found.

There is at present no single entirely satisfactory explanation of the occurrence of symphydia. The most plausible theory, perhaps, is that advanced by Bolk of Amsterdam, in which he assumes that there is a more or less extensive defect in the development of the segments which furnish material for the pelvis and the lower limbs, due to the early arrest of segment formation. Associated with this is a non-development of the allantois and the vessels of the body stalk.

### Presentation of Case

Before Doctor Ingalls gave his paper on Symphydia, J. J. Thomas gave the history of one of the foetuses which had been studied and slides of which had been made by Doctor Ingalls.

Doctor Thomas said that several months ago he had been called by Doctor Albl to see the mother of this foetus. Upon a previous call Doctor Albl had found the woman eight months pregnant, suffering with placenta previa, the child lying in the transverse position. He had the mother removed at once to St. Ann's Hospital, when Doctor Thomas first saw her vaginal examination showed a hand presenting, the os three-quarters dilated and the placenta palpable. As internal podalic version was clearly indicated, it was performed at once. As can be readily understood by Doctor Ingalls' description, the failure to find a foot was very puzzling, and it was finally decided to turn the child by traction on the only extremity available, which was thought to be a deformed foot. Version and extraction were readily accomplished, but during the delivery of the breech he sought in vain for the other leg, which was not there. The foetus was dead born and weighed about five pounds. Doctor Thomas and Doctor Ingalls wished to acknowledge their debt to Doctor Albl, who persuaded the parents to make this contribution to the list of medical curiosities.

**2. Fundamentals of Infant Feeding, by Maynard Ladd, M. D., Instructor in Pediatrics, Harvard Medical School, Boston.**

The opening of the new laboratory of a Cleveland company, under

the direct supervision of the Academy of Medicine, marks a very important epoch in the history of percentage feeding in America, a system which had its origin in Boston. The supervision and certification of the products of the laboratory by an organized municipal association of physicians has never before been attempted. The experiment will be watched with interest.

In considering the subject of infant feeding it must be admitted that men meet with successes and failures by very dissimilar methods. In spite of this fact, it must be admitted that great progress has been made in putting the substitute feeding of infants on a scientific basis. Certain principles have been laid down which can, I believe, be accepted by all, without limiting one's individual ideas and practices.

There is no question as to the advantages of breast feeding over all others. It should be our endeavor to encourage the number of breast-fed infants. Yet, with all of our endeavor in this regard we still have with us the necessity of learning all that present methods have to show us as to the principles of substitute feeding.

A clean, uncontaminated milk supply is the basis of all scientific systems of infant feeding. In substitute feeding there are only three possible methods of utilizing cow's milk:

1. The use of whole milk, undiluted or diluted.
2. The use of skimmed milk, undiluted or diluted.
3. The use of creams, diluted.

Whatever our method of making a food for infants, in which milk is the basis, we are making a modified milk, containing a certain percentage of its elements. Percentage feeding presupposes that these alterations have been made by the physician with design, and with a definite knowledge of the results of his change. Under the old method this was impossible. Under the new system it is indispensable that the physician should know the normal percentage constituents of any given milk, be able to calculate for any desired percentages and estimate the caloric value.

The milk laboratory serves a definite function to the community. We demand from it in the first place a clean, safe milk. It must stand ready to fulfil accurately any percentages of fats, sugars and proteins which we desire. It must be able to supply us with additional ingredients as well as the newer and specially prepared preparations. The appropriateness of the prescription and the choice of food for each individual case, however, fall to the lot of the physician. Whether the child gains or loses, lives or dies, is not the responsibility of the milk laboratory, but our own.

The problem of infant feeding was attacked originally by the pediatricists of Europe, without any attempt at fine distinction between the different elements found in milk. The caloric value of breast milk was determined, as was also the number of calories of food required, per kilogram of body weight. In recent years, we in America have also paid more attention than formerly to the caloric value of percentage combinations, but without losing sight of the part played in digestion and nutrition by the different elements of milk.

At some time or other in the history of the development of pediatrics, as the science of infant feeding, some one constituent or other of cow's milk has been blamed either wholly or in part for the various nutritional disturbances which have been found to follow in the train of artificial feeding. All of these views are probably extreme. In the light of modern science we are beginning to see that all of the constituents of cow's milk under certain circumstances, such as too great concentration or improper percentage, or in the case of individuals with a poor tolerance for them, may prove trouble makers. The value of the contributions of various investigators and observers has been to show the profession the part played by each constituent in the maintenance of nutrition and to lay down certain rules for the modification of milk. To be sure, the question of proper feeding, in the ultimate analysis, rests with the physician, who must be able to observe the nutritional defects of his patient, and then in the light of



present knowledge arrange a diet for the infant, which should under favorable conditions prove to be, as near as possible, an ideal one in the individual case. Variations from this time on must be made on the basis of experience.

H. H. Powell in opening the discussion commented upon the exhaustive nature of the paper just read. There is, perhaps, no subject in the entire field of medicine which requires as much study, in order to achieve satisfactory results, as the subject of infant feeding. If every woman could nurse her baby for nine months the problem of infant feeding would be reduced to a minimum. This is impossible, however, and the problem with all its complexities remains with us.

As pointed out by the speaker, there can be no doubt but that the percentage method of feeding is the scientific method. Many who have tried it, and later abandoned the method, have done so because they were unwilling to devote to the subject the amount of time necessary for study. Physicians are inclined to try and get set formulae for infant feeding, based on age and weight, which will be applicable to all cases. This reminds one of young practitioners who have a set of prescriptions in their pockets which cover all cases.

The purpose of the Walker-Gordon laboratories is to make milk according to prescription. The prescription in each case must be made to conform to the child. The individual in each case is the factor, and the prescription must be suitable for him, whether two per cent, four per cent or six per cent sugar fits the requirements of the condition.

After securing an adequate knowledge of the principles involved in the science of infant feeding, one may use his own methods in applying them. Many babies are lost because some practitioners do not use scientific methods of feeding and do not devote sufficient time to the individual cases.

The speaker said that he made it a rule to use cream taken from certified milk. Relative to sugar, it is seen that disturbances of the digestion may follow either a cutting off of the supply of sugar or of changing the sugar to dextrin maltose. Excoriations of the rectum are often traceable to the fermentation caused by the use of an improper amount of sugar.

With regard to top milk, the speaker said that he had been in the habit of considering this as the upper half of the contents of a bottle. This method does not have the claim of scientific accuracy, but at best the amount of cream present is found to vary with the source of the milk.

C. W. Wyckoff expressed the opinion that the courses offered in medical schools on the subject of infant feeding are not adequate. Every man should be as familiar with infant feeding, its principles and methods, as he is with obstetrical procedure.

George W. Moorehouse reported experiments made to determine the amount of cream from milk of different cows. Among the half dozen cows used for the purpose he was able to secure ten to twelve ounces of cream from thirty-two ounces of milk. He used a Chapin dipper in the experiments, allowing the cream to run in until upon looking down the dipper little streaks of blue were seen. The cream secured tested from twenty to twenty-five per cent fat.

J. H. Coolidge, manager of the Belle-Vernon-Mapes Company, extended an invitation to all the physicians to visit the Walker-Gordon laboratories, which are dedicated to the production of clean milk.

F. W. Howe, of the Massachusetts Normal College, cited examples showing that the per cent idea permeates the business world. It is used in the study of chemistry, and hospitals use the system in computing diets for typhoids, et cetera. There is no reason why the percentage system should not be applied to infant feeding. The laboratory will be a decided help to physicians in the future.

S. L. Bernstein called attention to the great convenience which the

milk laboratory offered to practitioners, to have perscriptions prepared there rather than at home. He heartily endorsed the percentage method of infant feeding.

A. B. Storey asked the speaker for an explanation of his illustrations relative to the percentage of cream used in mixtures.

Doctor Ladd's paper will be published in full in the November Journal.

### COUNCIL MEETING

At the meeting of the Council of the Academy of Medicine held Wednesday, October 14th, 1914, at the Bismarck, the following members were present: The President, J. J. Thomas, in the chair; Doctors Spurney, Kopfstein, Houck, Lueke, Gallagher, Weir, Yarian, Follansbee, Skeel, Updegraff, Stoner, Sanford, Marine, Storey, Birge and Tuckerman.

The minutes of the last meeting were read and approved.

On motion the following applicants were elected to membership:

Active—Amos E. Fried, W. F. Hribal, E. P. Neary.

Non-resident—D. W. Shumaker, Canal Dover, O.

Associate Pharmacist—Carl Winter, Ph. C.

On motion the names of the following applicants were ordered published.

Active—F. J. Gallagher, Arthur S. Jones, Franklin F. Walter.

On motion A. M. Loope, M. D., was transferred to active membership from the New York State Medical Society.

The President brought up at the request of A. J. Skeel, who could not be present, the proposed bill for control of ophthalmia neonatorum, promulgated by the Ohio Commission for the Blind.

Section 1, which is as follows, was considered:

"Section 1. 'Babies' Sore Eyes' (Ophthalmia Neonatorum), Defined.—Any inflammation, swelling or redness in either one or both eyes of any infant, independent of the nature of the infection, if any, occurring any time within two weeks after the birth of such infant, shall be known as 'Babies' Sore Eyes' (Ophthalmia Neonatorum)."

Upon motion by Doctor Updegraff, the Council expressed its disapproval of the passage of the bill in its present form as being entirely too sweeping in its definition and placing thereby unwarranted annoyance upon physicians.

The Secretary was instructed by the Council to communicate with Doctor Wm. Snerer of Madison, O., a non-resident member, calling attention to the inadvisability of such endorsements as he is reported to be giving to "Dr. Quayle's Three Day Treatment for all Drug and Liquor Addictions."

**Preventing Typhoid Fever.**—The Kentucky State Board of Health is doing some effective work in educating the public of that state regarding health matters. The last number of its *Bulletin* was devoted to the prevention of typhoid fever. Accompanying the *Bulletin* was a large poster, setting forth the advantages of vaccination for typhoid fever, and enumerating over 270,000 vaccinations which were without harmful results and with enormous reduction in the sick rate. The statistics cover the experience of the United States Army, the British Army in India, and the Japanese Army, and include other data regarding the effectiveness of the use of typhoid vaccination. The poster is an example of some of the effective methods of publicity now being used by modern health officials. While the *Bulletin* may be read by scores, this large and attractive poster will be read by thousands, and is bound to be effective.



## BOOK REVIEWS

**Man's Redemption of Man—A Lay Sermon,** McEvan Hall, Edinburgh, Sunday, July 2, 1910. By William Osler. Paul B. Hoeber, New York, 1913; 63 pages. Price 50 cents.

**A Way of Life—An Address to Yale Students,** Sunday evening, April 20, 1913. By William Osler. Paul B. Hoeber, New York, 1914; 62 pages. Price

Two thoughtful and characteristic addresses by Sir William Osler, Regius Professor of Medicine in the University of Oxford.

To the many of us who know Doctor Osler, any comment upon these little volumes would be quite superfluous. To all others it may be said very truthfully that they are well worth careful reading. H. E. H.

**Pharmacology, Clinical and Experimental—**By Hans H. Meyer, Vienna, and R. Gottlieb, Heidelberg, Professors of Pharmacology, translated by John Taylor Helsey, M.D., Professor of Pharmacology, Therapeutics and Clinical Medicine, Tulane University, La., 1914. J. B. Lippincott Co., Philadelphia.

The English title given to the "Experimentelle Pharmakologie" of Meyer and Gottlieb is somewhat misleading owing to the fact that the subject is treated practically entirely from the experimental standpoint. Real clinical pharmacology has barely made enough of a beginning to be composed into text-books. Nevertheless, the pharmacological viewpoint exhibited in this book is different from that of the one or two good text-books of pharmacology which this science possesses. Instead of grouping together and treating individually of a number of drugs with predominant and analogous actions, Meyer and Gottlieb treat of physiological systems as acted upon or modified by various agents. For instance, instead of dealing with the actions of the individual members of the cardiac groups of drugs, the circulatory system is discussed as influenced by various substances. This gives a no less important and interesting biological point of view. The chapter dealing with the pharmacology of the central and vegetative nervous systems, and those which contain discussions of theories of narcosis and the automatic system, are of special interest owing to the development of these subjects in the Institute of one of the authors.

The book was written as a guide for students who do not have opportunities for laboratory work, but who learn pharmacology mainly from lectures, with occasional demonstrations. In America, where the main emphasis is on individual laboratory work, and the lecture is only supplemental, such a work as this would be useful chiefly as a book of reference. It can also be profitably read by the clinician. For these purposes it can be recommended very highly.

It is unfortunate that the translation is twice as large as the original. This appears to be due to the quality of paper rather than to the comments inserted by the translator. It would have been more in keeping with the style of the original and more advantageous to have retained the references at the foot of the page rather than to mass them at the end of each chapter. The German appears to have been successfully rendered into smooth English. While it is not stated, this appears to be a translation of the 2nd German edition. The 3rd German edition, with some new additions and alterations, was issued in June, 1914. P. J. H.

**Malaria and Yellow Fever.**—Samuel G. Dixon, Philadelphia (*Journal A. M. A.*, Oct. 3, 1914), says that as the duck is one of the greatest known enemies of the mosquito it is therefore of yellow fever and malaria. An experiment made in the building of breeding places for mosquitoes, in one of which ducks were permitted to feed and in the other gold fish were placed. The one in which the ducks were placed was for some months free from mosquitoes while the other swarmed with the young insects in various cycles of life. Ten ducks were admitted to the infested pond. At the end of twenty-four hours no pupae were to be found and in forty-eight hours only a few small larvae survived. Experiments and opinions of other observers seem to confirm these findings.

## ACKNOWLEDGEMENTS

The Practical Medicine Series. Comprising ten volumes on the year's progress in medicine and surgery. Under the general editorial charge of Charles L. Mix, A. M., M. D., Professor of Physical Diagnosis in the Northwestern University Medical School, and Robert T. Vaughan, Ph. B., M. D. Volume IV, Gynecology, edited by Emilius C. Dudley, A. M., M. D., Professor of Gynecology, Northwestern University Medical School; Gynecologist of St. Luke's and Wesley Hospitals, Chicago, and Herbert M. Stowe, M. D., Associate in Gynecology, Northwestern University Medical School; Attending Obstetrician to Cook County Hospital. Series 1914. The Year Book Publishers, Chicago. Price of this volume, \$1.35.

The Practical Medicine Series. Volume V. Pediatrics, edited by Isaac A. Abt, M. D., Professor of Pediatrics, Northwestern University Medical School; Attending Physician Michael Reese Hospital. Orthopedic Surgery, edited by John Didlon, A. M., M. D., Professor of Orthopedic Surgery, Rush Medical College, with the collaboration of Charles A. Parker, M. D. Series 1914. The Year Book Publishers, Chicago. Price of this volume, \$1.35.

The Practical Medicine Series. Volume VI. General Medicine, edited by Frank Billings, M. S., M. D., Head of the Medical Department and dean of the faculty of Rush Medical College, Chicago, and J. H. Salisbury, A. M., M. D., Professor of Medicine, Illinois Post-graduate Medical School. Series 1914. The Year Book Publishers, Chicago. Price of this volume, \$1.50.

Man's Redemption of Man. A Lay Sermon, McEwan Hall, Edinburgh, Sunday, July 2, 1910. By William Osler. Paul B. Hoeber, New York, 1913. Price, 50 cents net.

A Way of Life. An address to Yale Students, Sunday Evening, April 20, 1913. By William Osler. Paul B. Hoeber, New York, 1914. Price, 50 cents net.

Life and Law. The Development of the Exercise of the Sex Function, together with a study of the Effect of Certain Natural and Human Laws, and a Consideration of the Hygiene of Sex. By Maude Glasgow, M. D. G. P. Putnam's Sons, New York and London, 1914. Price, \$1.25.

A Manual of Biological Therapeutics. Sera, Bacterins, Phylacogens, Tuberculins, Glandular Extracts, Toxin, Cultures, Antigens, et cetera. Press of the Parke, Davis & Company, 1914.

Handbook of Pharmacology. By Charles Wilson Greene, A. B., A. M., Ph. D., Professor of Physiology and Pharmacology, University of Missouri; Member American Association of Anatomists, American Physiological Society, Society of Pharmacology and Experimental Therapeutics; Fellow of the American Association for the Advancement of Science; Associate of the American Medical Association, et cetera. With seventy illustrations, including many new, and in colors. William Wood & Company, New York, 1914. Price, \$3.50 net.

The Tonsils. Faucial, Lingual, and Pharyngeal. With Some Account of the Posterior and Lateral Pharyngeal Nodules. By Harry A. Barnes, M. D., Instructor in Laryngology, Harvard Medical School; Surgeon in the Department for Diseases of the Nose and Throat, Boston Dispensary; Assistant Laryngologist, Massachusetts General Hospital; Member New England Laryngological and Otological Society; Member American Laryngological, Rhinological and Otological Society. Illustrated. C. V. Mosby, St. Louis, 1914. Price, \$3.00.

Medical Jurisprudence. A Statement of the Law of Forensic Medicine. By Elmer D. Brothers, B. S., LL. B., Member of the Chicago Bar; Lecturer on Jurisprudence in the Medical and Dental Departments of the University of Illinois, and in John Marshall Law School. C. V. Mosby Company, 1914. Price, \$3.00.

Anoci-Association. By George W. Crile, M. D., Professor of Surgery, School of Medicine, Western Reserve University, Cleveland, and William



E. Lower, M. D., Associate Professor of Genito-Urinary Surgery, School of Medicine, Western Reserve University, Cleveland. Octavo of 259 pages, with original illustrations. W. B. Saunders Company, Philadelphia and London, 1914. Price, cloth, \$3.00 net.

A Treatise on Clinical Medicine. By William Hanna Thomson, M. D., LL. D., formerly Professor of Practice of Medicine and of Diseases of the Nervous System in the New York University Medical College; Ex-President of the New York Academy of Medicine, et cetera. Octavo volume of 687 pages. W. B. Saunders Company, Philadelphia and London, 1914. Price, cloth, \$5.00. Half Morocco, \$6.50.

A Reference Handbook of the Medical Sciences. Embracing the Entire Range of Scientific and Practical Medicine and Allied Science by Various Writers. First and Second Editions edited by Albert H. Buck, M. D. Third Edition completely revised and rewritten. Edited by Thomas Lathrop Stedman, A. M., M. D. Complete in eight volumes. Volume IV. Illustrated by numerous chromolithographs and 977 half-tone and wood engravings. William Wood & Company, New York, 1914. Price, cloth, \$7.00 net.

A Text-Book of Medical Diagnosis. By James M. Anders, M. D., Professor of the Theory and Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College of Philadelphia, and L. Napoleon Boston, M. D., Professor of Physical Diagnosis, Medico-Chirurgical College, Philadelphia. Second Edition thoroughly revised. Octavo of 1248 pages; 500 illustrations, some in colors. W. B. Saunders Company, Philadelphia and London, 1914. Price, cloth, \$6.00 net. Half Morocco, \$7.50 net.

Medical and Surgical Reports of the Episcopal Hospital. Hospital of the Protestant Episcopal Church in Philadelphia. Volume II. Press of William J. Dorman, Philadelphia, 1914.

The Question of Alcohol. By Edward Huntington Williams, M. D., formerly Associate Professor of Pathology, State University of Iowa, and Assistant Physician in the New York State Hospital Service; author of the "Walled City," "Increasing Your Mental Efficiency," et cetera. The Goodhue Company, New York, 1914.

Municipal Ordinances, Rules, and Regulations Pertaining to Public Health. Adopted during 1912 by the cities of the United States having a population of over 10,000 in 1910. Reprint 199 from the Public Health Reports 1912-1913. Government Printing Office, Washington, 1914.

## MEDICAL NEWS

**Returned from Peking.**—Doctor Richard Arthur Bolt, Instructor in the Tsing Hua College, Peking, has returned for a visit in Cleveland. Doctor Bolt was formerly Resident Pathologist at Charity Hospital, and later in private practice in Cleveland.

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**With the Canadian Army Medical Corps.**—Doctor A. W. M. Ellis, formerly of Toronto, has gone in the Army Medical Corps with the Canadian Expeditionary Force to the war in Europe. Friends of Doctor Ellis will remember him as Resident Pathologist at Lakeside Hospital when in Cleveland and later as associated with the Rockefeller Institute for Medical Research.

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**Western Reserve Medical Faculty.**—The following members of the Western Reserve University medical faculty have returned from abroad: T. N. Stewart, professor of experimental medicine; J. J. R. McLeod, professor of physiology; G. W. Todd, professor of anatomy, and P. J. Hanzlik, instructor in pharmacology.

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**Returned from Abroad.**—Doctor M. Stamm, of Freemont, Ohio, has recently returned from a summer abroad. During Professor Arnd's absence on military duty, he was appointed physician in charge at the Insel Spital, Berne, Switzerland.

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**Army Medical Corps Examinations.**—The Surgeon General of the Army announces that preliminary examinations for appointment of First Lieutenants in the Army Medical Corps will be held on January 11, 1915, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, shall be between twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible.

In order to perfect all necessary arrangements for the examinations, applicants must be completed and in possession of the Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present twenty vacancies in the Medical Corps of the Army.

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**Doctors Warren A. Dennis, St. Paul; William J. Mayo, Rochester, and James E. E. Moore, Minneapolis,** the committee on cancer of the Minneapolis Public Health Association, have been invited to act as the Minnesota State Committee on cancer for the American Society for the Prevention and Control of Cancer.

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**Canadian Conservation Commission.**—Instead of inaugurating a department of health for Canada, it has been decided that the Canadian Conservation Commission shall look after all health matters in the Dominion. In August the first number of a bulletin was issued to doctors, teachers and others interested in public health work, and will, thereafter, continue to be issued each month.

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**Doctor Maynard M. Metcalf,** Professor of Zoology at Oberlin



College, has retired from the faculty and is devoting his entire time to research in a private laboratory recently erected on his own grounds.

**J. Crosby Chapman, B. A.** (Cambridge), D. Sc. (London), Ph. D. (Columbia), has been elected assistant professor of experimental education of Western Reserve University.

A gift of £220,000 has been promised to London Hospital by Mrs. E. S. Paterson for cardiac research work.

**Professor B. Alfred Berthelm**, member of the Georg Speyer Haus in Frankfort a. M., being drawn to join his regiment, lost his life on August 17 at Berlin, in consequence of an accident, at the age of 35 years. The *Chemische Zeitschrift* relates that besides work in alkyl combinations of thallium (with Professor R. J. Meyer) and hydrates of molybdic acid (with Professor Rosenhinn) he has published numerous articles, partly with Professor Ehrlich and Dr. Benda, on nitro- and aminophenyl arsenic acid and their derivatives, on p-aminophenolarsenic oxide, diamino arsenobenzyoles and their derivatives. Professor Ehrlich writes in the *Frankfurter Zeitung*, that to Berthelm belongs the distinction of having accomplished the synthesis of salvarsan. Lately there has appeared from his pen an exhaustive "Manual of Organic Arsenic-combinations."

**Oxford and Cambridge Universities** are opening as usual, but at Cambridge a hospital for the care of wounded in war has been organized on a large scale; Downing College is garrisoned by a hundred nurses, the Medical Schools are housing a contingent, and a wing of the Leys School, the Cloister Court of Trinity and Pembroke College are prepared for the reception of military patients. At Oxford 600 beds have been placed in the Examination Schools.

A committee connected with Oxford University has been formed with the approval of the Belgian Minister, for the purpose of offering hospitality to professors of Louvain and their families. This committee is composed of the vice-chancellor, the principal of Brasenose College, Sir William Osler, Mrs. W. Max Muller and Miss Price.

**Renounced English Honorary Degrees.**—Among the German scientific men who have affixed their names to a manifesto renouncing the honors conferred upon them by English universities and other learned institutions are Professors Paul Ehrlich, Emil von Behring, Ernst Haeckel, August Weismann and Wilhelm Wundt.

**In 1902 Doctor and Mrs. Christian A. Herter**, of New York, gave to the Johns Hopkins University the sum of \$25,000 "for formation of a memorial lectureship designed to promote a more intimate knowledge of the researches of foreign investigators in the realm of medical science." According to the terms of the gift, some eminent worker in physiology or pathology is to be asked each year to deliver lectures at the Johns Hopkins University upon a subject with which he has been identified. The selection of the lecturer is to be left to a committee representing the departments of pathology, physiological chemistry and clinical medicine, and if "in the judgment of the committee it should ultimately appear desirable to open the proposed lectureship to leaders in medical research in this country there should be no bar to so doing." The committee named for this purpose consists of Doctors Welch, Abel and Barker. The eighth course of lectures on the Herter foundation were given by Thomas Lewis, M. D., lecturer on diseases of the heart, University College Hospital Medical School, London. The lectures were in the auditorium of the Physiological building, as follows: I. October 6.—"Observations Exemplifying Electrocardiography." II. October 8.—"The Relation of Auricular Systole to Heart Sounds and Murmurs." III. October 9.—"Observations upon Dyspnoea, with Especial Reference to Acidosis."

## FOR THE PHYSICIANS OF AFFLICTED BELGIUM

While the condition of the Belgian people is rapidly becoming critical with famine and cold confronting them, it should not be forgotten that the physicians of this stricken land—and their families—are likewise in direst need; the holocaust that has swept over their country has also left them destitute—their homes, equipment, libraries, everything, in fact, has been destroyed and lost. Hunger, cold and the most abject misery are all that they can expect unless those of us in happier circumstances take steps to relieve their condition—not *next week*, not *tomorrow*, but *NOW, TODAY!!*

Reluctant as we have been to make any move in this direction, for fear our purpose would be misinterpreted and misunderstood, it seems absolutely necessary that something should be done, if for no other reason than to draw attention to a class of men who are apt to be overlooked because of their activity for others. Therefore, hopeful that no one will place a wrong interpretation on the movement, or be so unkind as to think it possible for this or any other journal to seek any publicity from a condition so poignant with human misery, we have yielded to the requests of many interested friends and will straightaway undertake the collection of an *AMERICAN FUND FOR BELGIAN PHYSICIANS*.

Keenly appreciative of our humble capacities, we turn to our colleagues, our editorial brethren, and our friends generally, to co-operate with us in this effort to raise a sum sufficient to relieve as much as possible the awful distress and suffering our Belgian brothers are undergoing.

From every one, therefore, who is willing to aid this movement we solicit some small sum—one dollar, fifty cents, twenty-five cents—any amount will help to swell the total. Our one great plea is for every one who intends to give something, be it ever so humble, *to send it in early—TODAY!* Remember “he gives twice who gives quickly,” and the need of those who are to be aided by these contributions is urgent beyond expression. All contributions should be addressed to the Fund for Belgian Physicians, care AMERICAN MEDICINE, 18 E. 41st St., New York City. Make checks payable Belgian Medical Committee. In sending in contributions please give name and address of donor. These will not be published if not desired, but it will aid the committee to keep accurate records. This committee will work with the Belgian Relief Committee and arrange with that body to make disposition of the fund collected.

In the November issue of AMERICAN MEDICINE there will appear a full list of contributions with other essential information. *Brother physicians, brother editors, good friends, and every one whose heart beats in sympathy for Belgium's sorrowladen but noble, uncomplaining and hard working doctors, help us to save them from hunger, cold and destitution!*

Respectfully,

**The Committee in Charge of  
the Fund for Belgian Physicians.**

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Should any contributions be sent in care of the *Cleveland Medical Journal*, they will be promptly forwarded to the Committee of the Fund.

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**Bilateral Peripheral Facial Palsy.**—T. B. Throckmorton, Des Moines, Iowa (*Journal A. M. A.*, Oct. 3, 1914), reports a case of this affection, which is not commonly seen. The patient, an evangelist, after an attack of "grip" became heated following exertion of leading a large chorus choir, and sat in a chair near an open window from which the back of his head and neck were exposed to a draft. Two or three days later both sides of his face became completely paralyzed. He then remembered that a day or so before he had had pains in the region of the angle of the jaws which radiated backward behind the ears. Following the paralysis the pain became severe at times so that hyperdermic injections were necessary. Paroxysmal pains radiated over the scalp posteriorly and became more or less localized in the median line of the neck. There was no return of motion in the affected muscles until after ten weeks, when he could elevate the outer angle of the right eyebrow very slightly. Five or six months elapsed before there was any return of motion in the occipitofrontalis and then only on the right side. The response to faradism and galvanism are about equal on the left side, while on the right side faradism produces a little more pronounced contracture than does galvanism when the motor points are stimulated. The case is one in which the peripheral branches of the seventh pair of cranial nerves were simultaneously involved while the process extended upward in the Fallopiian canals as high as the points where the chordi tympani branches were given off. The patient's grandfather at the age of 50 sustained a unilateral facial paralysis (Bell's type), and his mother at 65 suffered from a similar condition for a period of three months. Recovery ensued in both instances. The author discussed the question of causation with reference to the probability of recurrence. He believe a hereditary predisposition may exist in some instances.

## DEATHS

**James Gregory Mumford**, of Clifton Springs, New York, died on October 18. Doctor Mumford was born in Rochester, New York, in 1863, and was educated at Harvard University, receiving the degree of A. B. in 1885 and of A. M. in 1890. He was appointed assistant surgeon to Carney Hospital, Boston, in 1892, and assistant surgeon to the Out-Patient Department of the Massachusetts General Hospital in 1894, and in 1896 became Assistant in Surgery in the Harvard Medical School, advancing to the position of Instructor in 1903. In 1905 he was made Visiting Surgeon to the Massachusetts General Hospital, serving in this capacity until 1912, when he resigned to become Physician-in-Chief to the Clifton Springs Sanatorium and Hospital, a post which he held at the time of his death. From 1892-93 he acted as surgeon in the Naval Brigade of the Massachusetts Volunteer Militia, and also served as surgeon in the Medical Reserve Corps of the United States Army. He was a fellow of the American Surgical Association, the American College of Surgeons and the Massachusetts Medical Society, and a member of the American Medical Association, the Boston Society for Medical Improvement, the American Society of Clinical Surgery, of which he was also secretary; the Surgical Club of Boston, the Boston Obstetrical Society, the Boston Society of Medical Science, and the Société Internationale de Chirurgie, as well as the Hasty Pudding Club of Harvard and the University Club of New York. Doctor Mumford had written largely and always entertainingly on many phases of medicine, among the better known of his books being the "Narrative of Medicine in America," "Surgical Aspects of Digestive Disorders," "Surgical Memoirs and Other Essays," "Practice of Surgery," with a second edition, and a "Doctor's Table Talk." To the friends and classmates living here, with whom he kept in close touch, Doctor Mumford's history is especially interesting, and his death brings a corresponding loss to these Cleveland friends.



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## FUNDAMENTALS IN INFANT FEEDING\*

By MAYNARD LADD, M.D., Instructor in Pediatrics, Harvard Medical School.

The opening of the new milk laboratory of the Walker-Gordon Company under the direct supervision of the Cleveland Academy of Medicine marks a very important epoch in the history of the system of Percentage Feeding in America, a system which had its origin in Boston under the direction and inspiration of the late Doctor Thomas Morgan Rotch.

To carry out this far-reaching scheme for the advancement of scientific feeding, it was necessary to enlist private capital, a step which in one sense commercialized the ideas he had in mind, but it was ever his wish, and the Walker-Gordon Company has to a remarkable degree seconded his efforts, to keep the milk laboratories out of the field of the ordinary commercial houses which are engaged in the exploitation of various "foods" for infants.

Much of the prejudice against percentage feeding in this country had its origin in the fact that the original laboratories were thus backed by private capital. Gradually this feeling has lost weight, as the public and the profession have come to realize that the milk laboratories are primarily centers for the production and distribution, under the prescription of physicians, of milk in various forms for the purposes of meeting the nutritive requirements of infants who are deprived of their normal food. The supervision and certification of the products of the laboratory by an organized municipal association of physicians has never before been attempted. The experiment will be watched with interest throughout the country; and I have confidence enough both in the principles of laboratory feeding and in the practical ability and scientific management of the present directors of the

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\*Read by invitation before the Cleveland Academy of Medicine on October 16, 1914.

Walker-Gordon Company to believe that your example in Cleveland will be followed by other cities in this country, to the good of the communities and to the ultimate reduction of infant mortality. As an educational institution to the physicians themselves, the importance of such an organization is very great; for a milk laboratory, if properly equipped and managed, provides the two great essentials of successful feeding: clean milk and accurate modification.

When your Secretary did me the honor to invite me to read a paper on Infant Feeding, in connection with the opening of the new Milk Laboratory, I accepted with pleasure, but with many misgivings, for the subject is one that admits of great diversity of opinion, and it is difficult to express individual views without exciting more or less antagonism from those whose practices have been at variance with such views. We all meet with successes and failures by very dissimilar methods. Yet I think we will all agree that great progress has been made in putting the substitute feeding of infants upon a scientific basis, and that our modern methods will adapt themselves to the new facts which are constantly being brought to light as a result of the extensive investigations which are being made into the fields of normal and abnormal metabolism. We have learned that many of the ideas advanced in the early days of percentage feeding are only partially true, some entirely wrong, and so it is easy to fall into the error of discrediting the whole movement. But such an extreme position is not justified, for the fundamental principles of the so-called American method are logical, scientific and distinctly practicable. In a paper of this scope, more or less general in nature, I wish to make as clear as I may principles which I think can be accepted without limiting one's individual ideas and practices.

There are many factors that enter into the question of feeding. I shall not touch upon the most important one, which deals with the breast-fed infant. We probably all admit that breast-milk is the simplest and most satisfactory method of feeding, when the lactation is normal. Every effort to induce a mother to nurse should be made. All our skill should be exercised to correct a breast milk that is "poor" or "bad" in quality, or which falls short of the necessary quantity for successful nutrition. But no matter how much we labor nor how much skill we exercise in the management of disturbed lactation, we shall always find that a very large number of babies in every community must either die



or be artificially fed. The problem is always before us, and always will be. The great world-wide movement in which we all have our share, to increase the number of breast-fed infants, can never relieve us of the necessity of learning all that present methods have to show as to the principles of substitute feeding.

Perhaps the greatest achievement in the line of improved methods has been the education first of the profession, then of the various municipal and state health organizations, and last of all of the people themselves, to the importance of the milk supply. A clean, uncontaminated milk supply is the foundation of any scientific system of feeding. It would seem as if this idea would have found ready acceptance from the first, but for reasons which are largely commercial, it has had a hard fight for its life; and there is still a long struggle ahead before anything like a safe milk supply will be universal.

It is useless to apply scientific methods of modifying milk to a supply that has come from cows fed upon swill, decaying vegetables, or distillery grain, or from herds roaming through pastures and woodlands and eating at will herbs and foliage that affect the quality of the milk.

The feeding of cows is the first step in the accurate feeding of infants. It is an exact science of which we physicians know little; it is part of the equipment of the scientific milk producer, such as we have seen today in the farm of the Walker-Gordon Laboratory, and such as may be seen in increasing number throughout the country among intelligent and progressive dairy-men.

The inferior quality of our general milk supply is one of the many causes for the great variety of views in regard to infant feeding. If our foundation is weak, our superstructures, erected with the greatest care, will often crumble and in their fall cause much confusion of thought and uncertainty of action. A few hours spent in a well-regulated dairy, in the milk-house, and in the modifying room, is more eloquent of the ways in which things should be done to produce the best results than hours of didactic teaching.

Milk consists of fat globules suspended in a plasma containing in watery solution carbohydrates in the form of milk sugar, proteins in a soluble form (whey-proteins), the coagulable proteins or casein, and mineral matter. The percentage composition of these elements in milk is influenced by many conditions such as

the breed of the herd, the quality of its rations, and individual peculiarities of the cows. But a given herd, scientifically fed and cared for, gives a milk when mixed of fairly uniform composition.

The herds of the Walker-Gordon farms, according to the latest investigations, show a milk which averages about

- 4.00 per cent fat;
- 4.75 to 5.00 per cent milk sugar;
- 3.20 protein.

Such a milk we call *whole milk*, as opposed to a *modified milk*, which is a milk in which the natural proportions of its ingredients have been altered. These alterations may be effected in such a way that the ratio between the fat, sugar and proteins always remains the same; that is: 4—4.75—3.20; or we may by other methods of modification alter these natural proportions of the ingredients of milk so as to obtain new ratios which are more adapted to the individual requirements of the child we are to feed.

For example, when whole milk is diluted with water or lime water, we reduce the percentages of all the elements but maintain the same ratio of fat, sugar and proteins that exists in whole milk. This is the simplest form of a modified milk.

But when to such diluted milk we add sugar or starch or proteins, we change the natural ratio between the fats, carbohydrates and proteins, as well as the percentage composition.

Again, if we allow the fat globules in whole milk to rise to the surface and remove the superfatted portions, the so-called "cream," or "top milk," and if this cream is then diluted with water, we have in still another way altered the natural ratio of the ingredients of the milk.

When whole milk is diluted with water or other non-milk diluents, the resulting mixture always contains a ratio of fat to protein of 4 to 3.2. On the other hand, when creams or top-milks are similarly diluted the proportion of fats to protein is increased and depends always upon the amount of fat in the cream or top-milk.

In substitute feeding there are, therefore, only these three possible methods of utilizing cow's milk:

1. The use of whole milk undiluted, or diluted;
2. The use of skimmed milk undiluted, or diluted;
3. The use of creams diluted.

To any of these three, may be added amounts of sugars,



protein or extraneous substances, such as starch, alkalies, acidifying agents, peptonizing agents, or proprietary foods, which are for the most part starches or derivatives of starch.

Now whatever our method of making a food for infants, in which milk is the basis, we are making a *modified milk*, containing certain percentages of the elements. Percentage feeding presupposes that these alterations have been made by the physician with design and with a definite knowledge of the end result of his changes. By the old method, milk was modified, quite as much as by modern methods, but with this fundamental difference, that the physician had not the slightest conception of the composition of his mixture and hence no check upon his results. Without a knowledge of the percentage composition of the milk, it is next to impossible to give a lucid and intelligent expression of its food value. A mixture expressed as so many ounces of cream, milk, lime water, sugar, and water, may exactly fulfil the requirements of an individual infant, but, unless I can express such a formula to a student in percentages, or calories, or both, my exposition of the principles on which I have acted in prescribing such a formula is vague and indefinite.

Whatever we may feel about the relative values of fats, and sugars and proteins, and the proportions best suited to individual conditions, the percentage method of thinking, writing and prescribing should not and does not complicate the question. In fact, it simplifies it enormously, for it furnishes us the means for accurate estimation of food values—and only by such knowledge can we intelligently check up our results when struggling with the problem of adapting a food to the individual requirements of an infant.

If one will grasp this simple idea of percentage feeding, one will disabuse one's mind of the conception, so erroneously held, that percentage feeding is ultra-scientific, very mathematical, complex and impractical for the average practitioner.

I wish to emphasize the fact that the purpose of percentage feeding is, on the contrary, to simplify the sometimes very difficult question of finding a food which the infant will digest and upon which it will gain normally in development. The mathematics involved in the calculation of percentages are of the simplest—a mere matter of proportions. If properly presented, any one of half a dozen methods in vogue is easily mastered and perfectly practical. It does not matter by whose methods one works

to gain this fundamental knowledge of how to calculate the percentage elements of the food, so long as that method is thoroughly mastered. Some methods are simpler to understand than others, and any method requires some study and practice, but this hardly offers an excuse for ignorance of the subject. Any third year medical student may in two hours be taught a practical way of calculating percentages and estimating the caloric value of any mixture. Such knowledge is rudimentary but fundamental. Any physician who pretends to feed scientifically should not shun the task of acquiring this knowledge, any more than he should avoid the labor involved in grasping the technique of simple surgical or bacteriological procedures, in order to become more skilled in the practice of modern medicine. Too much is written of the difficulties of these methods of calculation by men who have been too lazy or indifferent to learn them; too little has been written about the responsibility of the physician to master them in order to become a more efficient worker along the lines of modern infant feeding. Many of our text-books in pediatrics cater to the men who do not know and will not learn these rudimentary principles—which are the tools of our trade. One can find some excuse for this for the man who has been long established in practice, but the specialists of the future are the students of today, and for them this groundwork of knowledge concerning the chemistry of milk, the percentage composition and caloric value of milk mixtures, is indispensable.

Those of you who have used the milk laboratories have had an opportunity to judge of the practicability of the percentage method of feeding. They are, besides being convenient, distinctly educational. They do not teach one the principle of the adaptation of milk to infants, but they furnish the physician with the instruments by which he himself may learn how the infant responds to foods of different strengths, quantity and caloric values. They enable him to judge of the influence of fats, sugars and proteins in digestion and nutrition, and, within reasonable limits, eliminate the errors which arise from variations in food which in home modifications often occur without our knowledge. What we demand of the milk laboratory is clean, safe milk, and accurate fulfillment of the percentage of fats, sugars, proteins, et cetera, for which we write. We expect it to provide us with additional ingredients such as sugar in various forms, starches, and alkalies. We expect to obtain from it the



newer and specially prepared mixtures—such as eiweissmilch, or protein milk, lactic acid mixtures, or precipitated casein mixtures, preparations not easily or conveniently provided at home. Having equipped itself to do all this accurately and scientifically, the only responsibility of the laboratory is to maintain its standard. It has no responsibility as to the results which are obtained in the use of these foods. The appropriateness of our prescription and the choice of the food are the responsibility of the physician. Whether the child gains or loses, lives or dies, is not the responsibility of the milk laboratory, but our own.

How many times have we seen a failure in feeding attributed to “laboratory feeding,” when the physician knows that the failure is his—a failure to diagnose the nutritional requirement of the infant he was feeding. So the laboratory sometimes furnishes us a cloak for our ignorance; so percentage feeding is often blamed for results for which we are ourselves responsible.

The pediatricists of Europe at first attacked the problem of infant feeding from quite a different point of view from that of the American workers. Their investigations ignored, for a time, the influence of the different elements of milk in digestion and nutrition. They determined the caloric value of breast milk and reduced the factors to the required calories per kilogram of body weight. The quantity of food was reduced to an amount proportionate to the body weight. The calories were supplied by the use of whole milk, with the addition of sugar or carbohydrate in some form. No effort was made to make any fine distinction between the different elements of the food. As long as the food had the proper energy value and was sufficiently diluted, it was made to serve its purpose.

Within recent years, we, in America, have been giving more attention than formerly to the caloric value of our percentage combinations, but without losing sight of the part played in digestion and nutrition of the different elements of milk.

There should be no conflict between percentage feeding and feeding based upon calories. Both methods attempt to express the value of a food in intelligible terms; the first expresses the composition of the food in percentage of its elements; the second gives the fuel value of the mixture as a whole. It is self-evident that no infant can be fed exclusively upon either fats, carbohydrates or proteins; it must have all three elements. Percentage feeding simply expresses in a form easy to understand the ratio

between the fats, carbohydrates and proteins; that is, the balance of the mixture.

The "energy quotient" is simply a means of stating the fuel value of the food as a whole, in terms of calories, to each kilogram of body weight.

Too little distinction is made by the critics of percentage feeding between the *calculation* of the food formula and the *adaptation* of the food to the infant's individual needs. In regard to the adaptation of the modification, so many different theories are held that much confusion exists among physicians as to what are the essential principles of infant feeding. This confusion of opinions in the end discourages the inexperienced student who is trying to master the subject of scientific feeding.

Much of the misconception of the American system of feeding originates, it seems to me, in the rules for feeding which are given in all the text-books to cover the requirements of the average healthy infant. One naturally rejects the idea that nature has designed that all infants of a given age, should have a fixed ration of fats, sugar and proteins, for one's experience is very much to the contrary. There is a great variation in the food requirements of different infants, variations, dependent upon age, weight and difference in capacity of digestion and assimilation. The rules I refer to are approximately correct for the average normal healthy infant, but are not intended to be a guide for the sick or badly nourished child—the so-called "difficult feeding" case. They are rules based upon averages and as such may or may not be applicable to the individual case.

With equal reason one may fairly object to tables giving the caloric requirements of infants in terms of the energy quotient. These rules, too, are based upon the averages of many observations, and are often far from accurate when one is considering the food requirements of any particular infant who is suffering from indigestion and malnutrition.

The study of the value of the constituents of milk in infants' feeding has been greatly stimulated by recent metabolism experiments by means of the calorimeter adapted to infants. As a result of these studies, many valuable and suggestive observations have been made. In time, these results, with others still to come, will undoubtedly elucidate many of the divergent views based upon clinical observations, but one can not follow the results of these investigations without feeling that they do not as yet offer



a definite solution to many of the problems of infant feeding. On the contrary, they have opened up innumerable questions bearing upon the inter-relation of the component parts of milk to the general problem of nutrition.

Our ideas based upon metabolism experiments are in a state of flux, but they have added much to a more scientific and rational conception of the problems at stake. It is practical to inquire into some of the facts which these accurate studies of nutrition have brought out, without attempting in any way a thorough exposition of the subject.

The energy value of the food of an infant must be sufficient to keep the body in a state of equilibrium by providing for wear and tear of the tissues, normal growth and heat radiation. The amount of energy required is proportionate to the surface area. As the body increases in size the surface area diminishes relatively; hence the number of heat units required per kilogram of body weight is greatest at birth or in very small or emaciated babies, and steadily diminishes as the infant reaches the full development of the first year.

The results of clinical observations upon infants fed upon accurate modifications of cow's milk will convince any impartial observer that the different ingredients of milk properly adjusted to an infant's needs produce normal growth and nutrition; improperly adjusted, they may cause severe derangements of digestion and nutrition. I need only mention as examples of the latter the sour vomiting and fatty stools from excessive fats, the vomiting and scalding loose stools of sugar diarrhoea, the putrid stools, large casein curds and rise in temperature from excessive proteins, the spongy, gelatinous movements of undigested starch when present in large amounts.

What are some of the practical bearings of metabolism experiments upon the inter-relations of these food products in infant feeding?

*Protein Metabolism:* In the early days of percentage feedings the proteins of cow's milk were blamed for most of the failures of substitute feeding. This was indicated by chemical analysis which showed a great excess of casein in cow's milk as compared to human milk, a proportion approximating 4 to 1, and it was held that the complex nature of the casein molecule threw an excessive burden upon digestion and assimilation. But it now appears from numerous metabolism experiments that the nitrogen of cow's

milk is absorbed and retained as completely as the nitrogen of breast milk. The protein must be furnished to make good the wear and tear of tissue and to provide for the requirements of growth. The casein is not in itself difficult to digest providing it is in a physical form which can readily be acted upon by gastric secretions. Anything that prevents the formation of large curds or tough acid curds in the process of coagulation in the stomach increases, of course, the ease of digestion and assimilation. The amount of protein necessary for growth is estimated to be about 10 per cent in excess of the energy required to maintain equilibrium. Of the energy derived from the proteins about 50 per cent is retained for the purpose of growth; the greater part of the remainder is utilized in the repair of tissue, and a small remaining portion goes into heat production.

If the amount of fat and carbohydrate is insufficient to supply 90 per cent of the required amount of heat units, the body draws upon its tissue for fuel and nutrition suffers, unless the proteins are increased beyond the amount necessary, for growth and repair, to supply units for heat production.

If an excess of protein is continued for a long time, it may produce an unfavorable effect through its specific dynamic action on metabolism, whereby the amount of heat production may become so great as to cause trouble. This excess heat production may be used up in winter, but in warm weather, becomes a source of danger from lack of radiation.

In very young babies, whose heat regulating mechanism is not fully developed, such excessive proteins may cause a rise in temperature, besides throwing additional work upon the processes of digestion and intermediary metabolism, and so lead to putrefaction with its concomitant dangers.

Breast milk, the most successful of all nourishment, derives just about 10 per cent of its caloric value from the proteins. It is probable that in substitute feeding, a somewhat higher proportion of protein may be desirable, especially in the latter part of the first year, when the increased weight of the body calls for a greater supply for tissue repair. The danger of long continued excessive proteins should be borne in mind, and the effort made to draw upon fats and carbohydrates so far as possible for the calories necessary for heat production, while proteins are prescribed in amounts necessary for growth and tissue repair. Moreover, it should be remembered that the addition of fats and carbohydrates



causes a much greater retention of nitrogen, so that the protein requirement is relatively less when the infant's digestion allows one to give proper proportions of fat and carbohydrates. It is by means of the estimation of the caloric value of the food as a whole, and of the percentage composition of the food that these inter-relations of the component parts of milk may be scientifically adjusted to individual requirements.

Nitrogen retention is also largely dependent upon mineral metabolism, for if the retained nitrogen is to be built up into living tissue, it must sooner or later unite with the mineral matter. If the salts of the food are deficient, loss of nitrogen results. In normal healthy infants, this mineral metabolism takes care of itself, but in difficult cases of feeding, especially when very dilute mixtures only can be given, disturbances in salt metabolism are unquestionably a great factor in the results of feeding. This aspect of the subject is very complex and much work must still be done before the conclusions from experiments can be utilized in the practical feeding of infants.

*Fat Metabolism:* The fat in breast milk furnishes 50 per cent of the energy of the food. It is evidently the intention of nature to put upon the fat of milk a fuel value equal to that of both proteins and carbohydrate. Even in the early weeks of life we find the fat percentage of breast milk is established on this high ratio, with beneficial effect upon the infant's nutrition. An attempt in substitute feeding to imitate exactly nature's example is, however, likely to result in unfavorable developments. The infant's tolerance for the fat of cow's milk varies greatly in individuals. With few exceptions, the full 3.5 or 4 percentage of fat must be worked up to gradually. Much diversity of opinion exists as to the amount of "cow's fat" that can be advantageously given at different periods in the first year. This question is not so easily settled as one might expect, for the evil effects of over-stimulation of the fat digestion is not always immediately followed by symptoms. At first the responses may be favorable, only to be followed by a lowered rate of gain, and finally by loss of weight, severe anaemia and digestive disturbances. This possible and frequent sequence of events has undoubtedly led to great conservativeness on the part of some physicians. I have repeatedly seen cases in which infants have been kept too long upon a restricted fat diet to the detriment of their nutrition, on the general theory that very low fats only are desirable and safe.

The function of the fats may be transferred to a considerable degree to the carbohydrates. When, from the necessities of the case, low fats are required, higher percentages of sugar are indicated. It is with the sugars, rather than with the proteins, that one must try to make good any necessary deficiency in fats.

The fat splitting enzyme has been demonstrated in the gastric secretions, but the digestion of fats is carried out almost entirely in the intestines. It is not thoroughly understood whether absorption occurs as fatty acids or soaps, neither is the exact relation of the soluble soaps of sodium and potassium and the insoluble soaps of calcium and magnesium in fat metabolism perfectly clear.

The normal stools consist of about 40 per cent of fats, of which 10 per cent is neutral fat, 10 per cent soluble soaps and the rest fatty acids and insoluble soaps. Now, the relative amounts of the neutral parts of the soluble and insoluble soaps and of the fatty acids are greatly influenced by different states of digestion in health and disease. As a result of which, there is great variation in the degree of absorption of fats. Minor degrees of variations in fat digestion are to be appreciated only by variations in the rate of gain. The most serious disturbances are shown in two distinct types of indigestion: (1st) the so-called fat diarrhoea, as described by Biedert; and (2d) the condition of "milch nährschaden," probably the same as "Fettnährschaden," of Czerny and Keller.

The diarrhoea due to fat indigestion, is generally an acute condition dependent upon an excess of the lower fatty acids in the stools, which some have attempted to show is due to bacterial action. Whether this is true or not, the condition results in draining the body of its alkalies, especially of the sodium salts, in order to neutralize the acids of this intermediary metabolism. As a result, the body draws upon its protein content to form ammonia to make good the drain upon its alkalies, thus causing a high ammonia content of the urine. This form of diarrhoea, however, does not affect the absorption of calcium and magnesium, but does result in a loss of sodium and potassium. The absorption of fat is greatly diminished, as much as 50 per cent and the neutral fats instead of being freely split constitute the main portion of the stool.

In the second type of fat disturbances, the "fettnährschaden," the reverse of this salt metabolism takes place. There



is a loss in calcium and magnesium, but the absorption of sodium and potassium salts is normal. Nitrogen retention is very slightly affected and the fat absorption suffers very little, so that the loss of calcium and magnesium appears to be the chief chemical change in metabolism. Clinically, these cases show a pale, pasty complexion, loss of appetite, diminished rate of gain, and finally loss of weight. The stools are full of soaps, are large, dry, light colored and of foul odor. The movements are generally constipated. According to Stolte three conditions are necessary for the production of the soap stools and constipation, that is, fat and calcium in concentration and putrefaction, as opposed to fermentation. Thus, large amounts of casein may contribute to fatty stools in providing material for putrefaction. We see clinical evidence of this occasionally when a marked increase in casein, without any change in the fat percentage, will cause the appearance of soap stools. If putrefaction can be prevented the soap stools will disappear. Hence the importance in these cases of supplying carbohydrates in liberal amounts to favor fermentation, for in the presence of active fermentation, putrefaction can not occur. If the carbohydrate in the food is of small amount, or is very rapidly absorbed, fermentation does not take place and soap stools result. The striking effect of malt soup mixtures in this class of *fettnährschaden* depends probably upon the action produced by the combination of the starch and sugars in increasing the carbohydrates and making the conditions unfavorable for the production of putrefaction by supplying enough but not too much fermentation. It is, at all events, a clinical fact that higher percentages of fats and proteins can be given when combined with malt soups, than would be possible in mixtures lacking substantial percentages of carbohydrates.

*Sugar Metabolism:* The intermediate products of the metabolism of carbohydrates are not known, although many views, partly based upon scientific experiments, partly upon clinical observations, are to be found in recent literature. There is unanimity of opinion as to the dependence of the infant organism upon carbohydrates, and there is abundant evidence of the danger in their use to excess. The danger of over fat feeding and the tendency to rely upon carbohydrates to make good an infant's intolerance for large amounts of fat of cow's milk make this question of the influence of sugar and carbohydrates of extreme importance.

The amylolytic function in young infants is so poorly developed that starch can not be used solely to supply the infant's need for carbohydrates. Sugars must be an integral part of any dietary, and of the various kinds available, milk sugar, cane sugar, and dextrin-maltose preparations are the only ones for practical consideration. The first two are pure disaccharids; the latter is a mixture of maltose, dextrin salts and many nitrogen compounds, and its physiological action is, therefore, inextricably concerned with protein and salt metabolism, as well as with sugar metabolism, making accurate deductions as to its action very complicated and at present impossible.

In general an infant shows a high tolerance for sugars when digestion and nutrition is normal, but in certain cases of malnutrition and in acute and chronic indigestion this tolerance is greatly impaired.

In health the tolerance, judged by the development of alimentary melituria, is about equal for lactose and sucrose, but for maltose is nearly twice as great.

All the sugars furnish the same amount of fuel energy and are equally efficient in their influence upon nitrogen retention. As for their influence upon the rate of gain, opinions differ; but there is good clinical evidence that dextrin-maltose preparations are more efficient as weight producers. This may be partly due to some inherent quality of the sugar itself or it may be due to the fact, which is supported by clinical observations, that higher percentages of fats and proteins can be given when used in conjunction with the dextrin-maltose preparations, especially when combined with starch. The most striking verification of this statement can be made in the cases of *fettnährschaden* already referred to—and in the cases of extreme malnutrition or atrophy treated by means of the malt soup preparations.

In normal, healthy infants the superiority of dextrin-maltose is not so apparent, and equally good results are obtained with lactose. Whether suchrose is as efficient as lactose and dextrin-maltose is a question on which competent authorities disagree; personally I have had little success in its use. Why the malt soup feeding is so successful in the *milch nährschaden* type of cases is not definitely known. One explanation is that the potassium carbonate contained in the malt soup prevents the excretion of calcium.

The great impulse which in recent years has been given to



the study of the individual constituents of milk in infant metabolism has led to extreme views as to their influence upon digestion and nutrition, and as new facts accumulate, we notice a tendency to shift the responsibility of failures in feeding from proteins to fats, from fats to sugars, and from sugars to the salts of milk. A secondary result of all these investigations brings us to a realization that the inter-relations of these elements presents an extremely complicated problem for scientific investigation.

In the last few years milk sugar has come in for some vigorous attacks and according to one school most of the evils of substitute feeding can be laid to its account. This position is taken in the face of the fact that the sugar of breast milk is lactose. It would, therefore, seem that the milk sugar of cow's milk is essentially different in its action from that of human milk. Yet this position ignores the successful experience of all of us who have reared healthy infants upon cow's milk and lactose, and the fact that milk sugar of all animals is identically the same.

What should be borne in mind, I think, is the fact that when digestion has been seriously upset from any cause, the tolerance for sugars of any sort seems to be lowered, and their further administration must be governed by wise discretion both as to kind and amount. This point of view certainly is an advance over the maxim that used to prevail in the early days of percentage feeding, that sugars were seldom a cause of disturbance, providing the amount did not exceed that which was present in breast milk.

The sugars may initiate troubles through their property of fermentation, but just what are the irritation products so formed is not certain, for the lower fatty acids found in excess in diarrhoeal stools may come from either fats or sugars. The question is further complicated by the effect of the different ingredients of milk in furnishing food for bacterial activity, which has opened up a big field for investigation. The products of bacterial growth may in the future be shown to have as much effect upon digestion and pyrogenic phenomena as Finkelstein's conception of the influence of the sugar and salts of cow's milk. As eminent an authority as Howland states that "there is no satisfactory proof that sugar or salt hypodermically (in doses that are not obviously toxicological) has a pyrogenic effect, and that the experimental evidence that would show that sugar and salts

of whey are responsible for fever and the chain of constitutional symptoms associated with it, is lacking."

*Mineral Metabolism:* The present-day researches are centered upon mineral metabolism which, as we have seen, is closely correlated to the metabolism of fats, protein and sugar. The salts of K, Na, Mg, and Ca which are vital are in sufficient amount, or even in excess, in cow's milk, even diluted in the usual modifications. Iron is deficient both in breast and cow's milk, the extra supply needed for normal growth being drawn from the liver and other organs. The deficiency of this important element from the infant's natural food supply, explains the danger of a prolonged exclusive milk diet.

Metabolism experiments have shown that sodium and potassium are usually well retained, but a severe diarrhoea due to excessive fat, sugar or proteins causes a loss of retention and a negative balance obtains. If the condition continues the infant furnishes more of these alkaline bases by breaking down its own tissue, and nitrogen excretion then becomes excessive and plays a vital part in the production of malnutrition. When the initiative factor of such an indigestion ceases, the earthy alkalies and alkaline bases are absorbed in sufficient amounts from the food, a positive balance is restored and nitrogen retention is again established upon a normal basis, providing the proportion of fats, sugar and protein are properly adapted to the requirements of nutrition.

One of the objections that can fairly be raised to metabolism experiments is the short period of observation on which conclusions are based. The real test of feeding is the result obtained after weeks and months of observation. We have all seen many infants exactly and scientifically fed, with results which are anything but successful. Such cases emphasize the difficulty of applying general knowledge to meet individual requirements. The fault lies either in a wrong analysis of the case or lack of judgment in adaptation of the milk to the infant's needs.

A healthy baby must be free from gastric and intestinal indigestion, must develop in weight and weigh according to standards which have been accepted as normal. In so far as it falls short of these standards, the feeding is a failure.

In the milk laboratory now open to the physicians of Cleveland there are great opportunities to test our own and others' theories and practices. The errors of judgment caused by a poor



quality of milk, and by inaccurate modifications, are eliminated. Each child becomes, in a way, a very exact physiological experiment, and one that may be observed for long periods. We cannot determine the intermediate results of digestion, absorption and elimination, but we can prescribe our diet according to definite indications. We can accurately measure the intake of the food, in percentages of the various elements and their caloric values as a whole. We can see the final effect upon nutrition as shown by objective symptoms and the weight development.

How, then, as practical feeders, are we to approach the subject?

The normal, healthy infant can be successfully reared by many methods, but the important point to bear in mind is the fact that there should be method in the feeding. Many a physician can point with pride to the perfect development of an infant whose feeding he has directed, who is quite at a loss to explain intelligently the principles which have guided him in the choice of foods. Nothing is more confusing to the man without knowledge of the groundwork on which modern feeding is based than the mass of conflicting views to be read in current pediatric literature. What is this groundwork for practical scientific feeding?

In the usual feeding case there are five primary things to determine:

- (1) The total 24-hour amount of food;
- (2) The intervals between feedings;
- (3) The quantity to be given at each feeding;
- (4) The percentage composition of the food;
- (5) The caloric value of the food as a whole.

(1) *Twenty-four-hour amount.* This must be fixed according to variable factors:

(a) The age of the child and (b) its weight. A new-born infant of nine pounds does not require the same amount of food as a four months' baby of the same weight. A breast-fed baby at birth will often take two or three times more milk without harm than would be safe to give a bottle-fed infant. Babies with considerable emaciation require larger quantities at each feeding than would be judged necessary on the basis of their weight alone. Moreover, the composition of the milk influences the infant's capacity.

The stomach at birth is very small, and over-distension in the early days causes premature stretching. The result is seen first in regurgitation, then vomiting of larger amounts and finally an irritability which results in more or less persistent vomiting, with the loss of a considerable amount of the day's total food supply.

The growth of the stomach after birth, under the stimulation of food and digestion, is very rapid, so that we find that at two or three months the requirements, as regards the twenty-four-hour amount, are relatively greater than in the later months.

The practical bearing of these observations is obvious. The food in the first week is hardly more than ten to fifteen ounces. In the second week from fifteen to twenty ounces. By the end of the first month twenty to twenty-four ounces. By the end of the second month twenty-five to thirty ounces. For the third and fourth month thirty-two ounces, and after that with each month the quantity is slowly increased until at the end of ten months from forty-two to forty-five ounces are reached, which is about the maximum required.

It is easy to understand that no definite amounts can be fixed, for the weight of the child and its vitality are factors to be considered. No serious differences of opinion are likely to arise from these general rules as regards quantity.

(2) *Intervals Between Feedings.* In regard to the intervals between feedings, much diversity of opinion exists. A great deal of feeling apparently can be aroused in a discussion as to whether two, three or four-hour intervals are best suited for the infant's needs. And, of course, upon the intervals between feedings depends the number of feedings; and upon the twenty-four-hour amount and the number of feedings rests the determination of the quantity to be given at a feeding.

The adherents of the four-hour intervals are influenced by the desire to provide an interval of rest between feedings. Grulee, for instance, says that no normal infants over three months of age should be fed oftener than once in four hours and only four times a day, for "cow's milk mixtures do not leave the stomach for at least three hours after ingestion."

Now, it is true that the stomach is seldom completely emptied in three hours. I would even state as a result of my studies on gastric motility by radiographs, that the average infant, over three months, whether on breast milk or cow's milk, requires from four



to five hours to get rid of all of its gastric contents—so that I doubt whether even a four-hour interval provides a period of physiological rest to the stomach. One naturally inquires then why babies by the score who are fed at intervals of 2, 2½ and 3 hours may never vomit or even regurgitate except at rare intervals. The bismuth meals and radiographs supply the answer.

Food *does* pass out of the stomach before three hours. In fact, in the normal baby, a large amount of the food passes out of the pylorus without undergoing any gastric digestion, at least, to any considerable degree. By the end of one hour a large part and at the end of two hours the major part of the feeding has passed on, even when the quantity is large. Then occurs a period of slow expulsion lasting sometimes for hours, and even with food still remaining in the stomach the baby may show distinct signs of hunger. In several cases I have waited as long as seven hours for the last traces of gastric residue to disappear. In other words, it is a misconception to think of a feeding as undergoing complete gastric digestion, then, after three hours, as passing on for the action of pancreatic digestion. Judged by studies in gastric motility, gastric and pancreatic digestion divide pretty evenly the task of reducing the content of a feeding from the beginning of the nursing to the time when the stomach is completely emptied.

Moreover, there is another factor in the case which these same radiographs show. A new feeding does not readily mix with partially digested food of the previous feeding, but tends to push it into the pyloric end of the stomach and thereby hastens its exit.

From one point of view, then, these observations would prove an argument for the longer intervals of feeding, as the stomach is more completely emptied at the end of four hours than at the end of three hours, even though no period of rest, but only of diminished activity, is shown.

On the other hand, the more frequent feedings would seem to throw a greater burden on pancreatic digestion by hastening the exit of the residue of the previous feeding. This may be and apparently is, in cases, desirable, for in infants the pancreatic digestion is the more developed and important, the stomach serving to a large part as a reservoir for the food, and a means of preventing too sudden demands upon the duodenum.

In a general way, two-hour feedings (except in the first few

days, when owing to the small capacity, smaller amounts are desirable, so as not to overstretch the stomach), seem less desirable than the two-and-a-half and three-hour feedings. It is better to get on to three-hour feedings as soon as possible. This can always be done in breast-fed infants by the end of a week, or at the most, two weeks; and in bottle-fed babies by the end of three or at the most four weeks. As to the four-hour feedings after the third month, that is a matter of individual experience. Personally, I have not been able to convince myself of its practical advantages as a routine measure at this early age. I think I can secure better results with three-hour feedings and smaller amounts than one would give if four-hour intervals were followed, with five feedings only in twenty-four hours.

Very vigorous breast-fed infants often take from two to three ounces more at a nursing than one would give in substitute feeding. In such cases four-hour intervals are rational and may be distinctly advantageous.

(3) *The Quantity at Each Feeding.* This is naturally determined by the number of feedings. After the first month, perhaps earlier, four-hour intervals at night should be allowed for sleep—that is, the child is fed at 6—10—2—6, and at three-hour intervals by day making seven feedings. Generally by three months the two o'clock feeding can be advantageously omitted, which would mean six feedings. The daily quantity divided by the number of feedings naturally gives the quantity at each feeding. In any methodical system of feeding this daily quantity is gradually increased month by month, to supply the greater demand for water as the weight of the body increases.

(4) *Percentage Composition of the Mixture. Fats.* The breast-fed infant is able to digest from 3.5 to 4 per cent fat as soon as lactation is established. Such percentages of fat from cow's milk may be given with successful results, but in the majority of cases will eventually precipitate serious disturbances of digestion. Experience has shown the wisdom of beginning with percentage as low as one or two per cent, for the tolerance to cow's fat must be gradually developed. So much has in recent years been written of the danger of fats that the general tendency among careful feeders is at present very conservative. Some physicians never exceed two or two-and-a-half per cent until the child is able to take undiluted milk toward the end of the first year. Such prac-



tice is, I think, over conservative. Many infants can digest normally  $3\frac{1}{2}$  to 4 per cent fat by the fourth or fifth month. In the early months such percentages of fats, however, can not be safely given at the same time with high percentages of sugar and protein. One frequently sees young infants who have been worked up to 6.5 or 7 per cent sugar with 2 or  $2\frac{1}{2}$  per cent of protein. If, in addition, one attempts to push the fats to the maximum over-feeding results and the infants eventually show unmistakable signs of fat indigestion. If the modified milk is to contain the same percentages of fat found in breast-milk, the proteins should not greatly exceed 1.5 or 1.75 per cent; that is, they should approximate this ratio in breast-milk. The susceptibility of infants to fats varies so greatly that each case must be judged by careful analysis, as to which combination is best suited to it, whether high fats with moderate proteins, or moderate fats with high proteins. Personally, I believe that the attacks upon fats have been so severe that the pendulum of professional practice has swung too far against their use.

In this connection, however, I should like to call your attention to certain facts in connection with the fat content of creams and top-milk, the knowledge of which seems to me of vital importance to every one who is feeding infants upon mixtures prepared at home.

Nothing leads to greater confusion than the lack of understanding as to the meaning of "cream," and "top-milk." Many possibilities of error and many explanations of failures can be traced to the way in which these terms have been used.

Strictly speaking, "cream" is simply a superfatted milk. Unless the word is qualified by the percentage of fat, such as 10 per cent cream, 16 per cent cream, 32 per cent cream, it has no definite meaning. A formula, therefore, which simply calls for a given number of ounces of "cream" (fat percentage not indicated), may yield a mixture with varying percentages of fat. For example, four (4) ounces of cream in a 20-ounce mixture will yield:

- 2 per cent fat—if the cream is of 10 per cent fat strength
- 3.2 per cent fat—if the cream is of 16 per cent fat strength
- 4 per cent fat—if the cream is of 20 per cent fat strength
- 6.4 per cent fat—if the cream is of 32 per cent fat strength

Now, if I calculate for a mother a mixture supposed to contain 3.2 per cent fat on the basis of the use of 16 per cent cream, and

if the mother or nurse, by mistake, uses a 32 per cent cream instead, the baby's mixture will contain 6.4 per cent fat, an amount that may precipitate a serious disturbance of digestion if long continued. Yet, to many mothers and nurses, and I fear to some physicians, as well, "cream" is simply cream and the percentage of fat in the cream enters very little into their consideration. I have often known a physician to write a formula in which he has figured on the basis of the cream containing 16 per cent fat, while the nurse, uninstructed as to details of the modification, has used a cream of 24 per cent or 32 per cent fat, with distressing results. Many of the directions for feeding issued by the makers of proprietary foods, give formulae containing cream, with no specifications as to how the cream is to be obtained or indications as to its fat percentage. The same lack of precision may be found in some of the text-books of pediatrics.

Again, we see much confusion as to the use of "top milks." I have recently met with two nurses, trained in different schools, one of whom thought that "top milk" was milk taken off as far down to the cream line; the other considered it the upper half of a quart of milk. In other words, one nurse was using 16 per cent fat cream; the other 7 per cent fat cream, and neither had the slightest conception of the amount of fat which the babies were getting in their mixtures. There are physicians who are equally vague in their ideas of "creams" and "top milk." We have all seen many infants with serious disturbances of digestion and nutrition from over fat feeding, largely because the physician or nurse has not known the fat percentage of the cream or of the top milk which was being used.

In laboratory modifications the chief reason for the greater accuracy obtained in the milk formulae is owing to the fact that the mixtures are made up from cream which is daily tested for its fat percentage and corrected to within 0.25 per cent. Cream mixtures, however, as obtained in the average household are capable of wide variations from the fat percentage on which we figure. This is particularly the case when cream is considered to be the upper portion of the milk taken down to the cream line. Such a cream is generally called "gravity cream" and supposed to contain 16 per cent of fat; but this general rule often leads to gross errors.

Here are the analyses of three specimens of milk taken from three individual cows and allowed to set each 14 hours



(i. e., over night), under the same conditions. The upper portion down to the cream line was removed in each case with the following results:

	Ounces of "cream" obtained	Fat percentage of the "cream"	Fat percentage of of the whole milk
Cow No. 1	7	19 per cent	4. per cent
Cow No. 2	7½	15 per cent	5.27 per cent
Cow No. 3	8	11 per cent	4.34 per cent

The gravity cream, therefore, instead of being 16 per cent fat in each case varied from 11 per cent to 19 per cent. If a 20-ounce formula had called for 5 ounces of gravity cream, instead of getting 4 per cent fat in the mixture, we would, in the formulae made from the three milks, have obtained 4.75 per cent, 3.75 per cent, and 2.75 per cent fat; variations so great that no one could question their importance in a feeding case.

Variations in the fat percentage of top layers down to the cream line depend partly upon differences in the fat content of the whole milk, and partly upon conditions due to the viscosity of milk, which vary from time to time under circumstances that the most experienced milk chemists are unable to explain.

*Sugar Percentage:* The infant's tolerance for sugar is well developed as a rule. It will generally take 5 per cent from the very beginning, 6 per cent by the end of the first month, 6.5 per cent at the end of the second month and 7 per cent at the end of the third month. Beyond this amount it is not wise to go. There are, of course, cases of intolerance for sugars, especially after acute intestinal diarrhoeas, when the safe percentage must be determined by trial.

Equally important with the percentage of sugar is its variety. Any mixture has a certain amount of lactose from the cream and skimmed milk used, but unless dry sugar in some form is added the mixture will be deficient in carbohydrates. The additional sugar is generally supplied in the form of milk sugar. Ordinarily this is satisfactory, but when evidence of fermentation exists, or when the rate of gain in weight is slow, the substitution of dextrin-maltose for the milk sugar often corrects the results of excessive fermentation and leads to a more rapid gain in weight. Assimilation of dextrin-maltose is greater when combined with wheat or barley gruels, and if neutralized by potassium carbonate, such mixtures come under the head of "malt soup" feed-

ings, the efficiency of which is most strikingly demonstrated in cases of extreme malnutrition after the first six months.

Milk sugar, cane sugar and dextrin-maltose are all disaccharids and are all reduced by their respective intestinal ferments to monosaccharids and are absorbed as such. The ferment maltase, however, occurs in other parts of the body and probably acts upon the maltose products even after absorption. This may explain the greater assimilation of dextrin-maltose as compared with other sugars, for the body's tolerance for it is twice as great as for the other sugars commonly used.

*Proteins:* Breast-milk contains nearly twice as much soluble protein (chiefly lactalbumin) as coagulable protein, or casein, and the total nitrogen content does not normally exceed 1.5 per cent. Cow's milk contains a little more than three times as much casein as soluble protein, and all dilutions of whole milk or creams contain this same proportion of the protein constituents.

This has led to the extensive use of whey protein mixtures, the object of which is to reproduce, as far as possible, the proportions of protein elements as they occur in breast milk. Such mixtures are unquestionably of value in certain cases, especially in the early months when excessive percentages of casein are most likely not to be well borne.

The amount of protein given must bear some relation to the amount of fat and carbohydrates. This statement is based upon clinical experience, rather than upon metabolism experiments. With very low fats, higher proteins can be given, but high proteins with high fats are not well tolerated, especially in difficult cases of feeding. The protein requirement of an infant has already been referred to. In my opinion it is rarely wise to push the proteins beyond 1.50 per cent in the first half year, or beyond 2 per cent in the second half—unless there is extreme intolerance of fats and sugars, in which case, the excess protein may be useful to supply material for heat production, in addition to the normal function of tissue repair and growth.

The form in which the protein is given is important. As I have said, the whey mixtures, giving relatively low casein percentages, are suitable for the early months, especially when the excess sugar in the mixture is supplied by dextrin-maltose. When the ordinary proportions of casein prevail, anything which prevents the coagulation of the milk in large masses adds to its digestibility. The most useful procedure is the addition of cereal



decoction, such as barley water, which causes a more flocculent casein coagulum. Recently the use of a finely divided precipitated casein to gain a higher nitrogen content has met with a considerable measure of success.

Similarly we may change the character of the casein by means of inoculation of the milk mixtures with various strains of the lactic acid organisms—reducing the casein to the lactate of casein, a form no longer coagulable, and very digestible. Undoubtedly one of the main virtues of Finkelstein's "Eiweiss milch" lies in this altered state of the casein. The reduced fat and the very low sugar content are, of course, equally important factors in its successful use in the acute diarrhoeas for reasons which have already been considered.

*Alkalies:* The use of alkalies in modifications of milk are limited practically to lime water and bicarbonate of soda. They serve several purposes: First, to reduce the developed acidity of cow's milk, to neutral or alkaline reactions; secondly, to influence the coagulation of the casein, and finally, to supply alkaline bases to unite with the fatty acids resulting from the intestinal digestion of fats, to form the soluble and insoluble soaps.

When used to reduce the acidity of milk only, the amount must vary according to the acidity of the milk and quantity of milk and cream used. It is not practical to determine each day the acidity of the milk used, and we therefore follow the general rule that lime water amounting to 20 per cent of the milk and cream used renders the milk approximately of the same reaction as breast milk. Fifty per cent of the amount of milk and cream used suspends all stomach action on the proteins. Five per cent of the total mixture gives a mild alkaline food.

With bicarbonate of soda a percentage of about 0.75 of the milk and cream used favors the digestion of proteins. All stomach action on the proteins is suspended when 1.75 per cent of the milk and cream used is added, and about 0.25 per cent of the total mixture gives a mild alkaline food.

No alkalies are needed in many cases, the indications for their use are seen in babies with a tendency to vomit or to regurgitate or with slight looseness of the bowels. It is generally sufficient to give a mildly alkaline food in such cases as the action of the alkalies is so varied that one cannot estimate accurately the exact amount of alkali needed. In cases of vomiting or re-

gurgitation associated with constipation, the laxative milk of magnesia is preferable to lime water or bicarbonate of soda.

Sodium citrate has also been extensively recommended to render the casein more coagulable. It possesses this power, but clinically, in my opinion, its use is disappointing.

*Calories:* Based upon the studies of breast-fed infants, Huebner and Rubner have shown that the normal breast-fed infant requires about 100 calories per kilogram of weight in each 24 hours (or 45 calories to the pound). The requirement is gradually lowered to 60 calories per kilogram of weight by the end of the first year. Such estimations furnish us with a valuable indication of the fuel value of the food as a whole, but in no way lessens the importance of providing proper percentages or proportions of the different milk elements to meet the individual requirements of the infant we are feeding.

In substitute feeding a higher energy quotient than that given above is required, particularly in under-nourished and under-developed babies. Practically, we often find that an energy quotient of 125 to 150 or even higher is temporarily required. One can no more state in advance in a given case the exact energy quotient needed than one can predict the percentage composition of the food. Both must be determined by an intelligent study of the infant's tolerance to the food and its nutritive demands. Feeding is always empirical, but one's experiments may be directed with method and understanding of the general principles of accurate modifications with better chances of success than if one employs haphazard and unscientific methods.

*Difficult Cases of Feeding:* It is not within the scope of this paper, in view of the limited time available, to enter thoroughly into all the problems underlying the feeding of difficult cases and those with acute disturbances of digestion. In a general way, feeding cases come under the head of (1) normal babies, (2) babies suffering from under-feeding, (3) babies suffering from over-feeding, (4) the acute disturbances of digestion with symptoms of acute diarrhoea of non-infectious origin, and (5) those due to infections (infectious diarrhoea).

The symptoms of indigestion show the cause to a limited extent only. Fats, proteins and carbohydrates may all produce the same symptom-complex, for the reason that an indigestion



caused by any one element, is uncorrected, results in a disturbance in the metabolism of all the elements. The general symptom-complex is vomiting or regurgitation, gas in the stomach or intestines with or without discomfort, failure to gain or loss in weight, anorexia, fever or subnormal temperature, loose and undigested stools or constipation.

In indigestion due to fat, the vomitus is generally creamy and sour, with a strong odor of butyric acid. The examination of the stools shows soft fat curds, and soap stools which may be dry and crumbling or like clay. In severe cases they are oily.

In indigestion due to carbohydrates, which generally is associated with fat indigestion if long continued, the vomitus becomes more watery, the stools are acid and scalding, spongy or feathery, and show undigested starch with iodine.

In protein indigestion the vomitus is cheesy, the stools contain tough curds. Putrefaction is especially liable to occur in such cases with foul stools and temperature.

Mucus is simply a sign of irritation and may occur in the stools in all forms of diarrhoea and indigestion. If present in large amounts and associated with continued temperature it generally means an infectious process. The presence of blood, pus and fever invariably indicates infection.

Green stools generally represent the severer forms of diarrhoea, which may or may not be infectious. They occur in all forms of diarrhoea and infections, but the color is not important in the diagnosis of the cause.

Certain general indications should be borne in mind in the treatment of these conditions. First of all a careful history of the previous feedings with the estimation of the percentage composition of the food and its caloric value, will often give a plausible explanation of the fault of the earlier feedings and so point the way to the rational lines of treatment. Two infants, for instance, may show the same degree of malnutrition—one from over-feeding, the other from under-feeding. If the infant has been overfed with fats, we know that, on the chances, the fat tolerance has been greatly impaired and it may take months to bring the child to the point where it can digest a normal amount of fat. The infant who is underfed, on the other hand, has greater recuperative powers and progress will be more rapid. Sugar indigestion and protein indigestion are more easily corrected than fat indigestion, and the results of careful feeding are more quickly attained.

In all cases of feeding with indigestion, whatever the cause, a safe principle is to begin with food of a composition such as would be given to a new-born infant, but the quantity and intervals are more nearly what they should be for its age. The elements which have been previously given in excess are the ones which will be advanced in strength most slowly. It is then a question of individual judgment and skill in adapting the food to the particular requirements of digestion and nutrition.

There is no specific way of rendering the fats more digestible except by limiting the percentage prescribed.

Sugar indigestion can sometimes be counteracted by changing the type of sugar—from lactose to maltose, or from maltose to lactose—but in the severer forms, it may be necessary to omit from the mixture for a time all extraneous sugar or starches. While this period of rest is being provided we can rarely expect to make the infant gain in weight.

Protein indigestion is capable of being influenced in several ways, exclusive of the limitation in amount. Cereal decoctions render the curd more digestible, as do alkalies to a less extent. A whey protein mixture, by which the same amount of nitrogen is given but with reduced percentage of casein, is especially useful in the early months. After the fifth or sixth months, malt soup mixtures often give the most brilliant results, but they are least useful in cases with severe vomiting and diarrhoea.

The diarrhoeal cases associated with fermentation respond most readily to sugar-free mixtures, in which the casein is in the form of precipitated casein or lactate of casein. Partial peptonization of a mixture also is an occasional resource, but one less used than formerly.

Infectious diarrhoeas in their acute stages are not strictly speaking cases of feeding, although the food is of primary importance in the treatment. They must be handled on the general principles of acute infectious diseases—with special indications, which I do not intend to discuss here. Generally speaking, however, we may recognize two distinct types of infections—one due to the gas bacillus, which thrives upon food rich in carbohydrates, and one due to the dysentery bacillus, which feeds upon the protein content of the food. In the gas bacillus infections we see the most brilliant results from the use of sugar-free mixtures, rich in protein. These are the cases which respond readily to Eiweiss milch and the precipitated casein and lactic acid mixtures.



In the dysentery types and the diarrhoeas caused by putrefaction of the intestinal contents the opposite holds true; a food as free as possible from protein, and rich in carbohydrates or sugars is indicated. Such cases are best treated in the beginning on a purely carbohydrate diet, either lactose, dextrin-maltose or starch.

In all forms of severe diarrhoea, whether fermental or infectious, fats are not well tolerated and are best excluded from the modifications during the acute stages, and their future administration must be in small amounts and carefully watched.

Much might be said further on the fundamentals of infant feeding. I have tried only to point out general principles which underlie modern infant feeding. Clinical experiences, and metabolism experiments will certainly modify some of the points of view which have been presented. Probably in the light of your own knowledge and experience many of you will find cause for different conclusions, but any exposition of the subject of infant feeding which did not contain something of the personal equation of a writer would be colorless and to some extent confusing, for the pediatricist of today represents the man who tests to the best of his ability what seems to him most rational and practical in modern research, and his personal opinions and practice furnish the technique of his treatment. There is no subject in the therapeutics of medicine in which one may more truly say with Hippocrates: "Experience is fallacious, and judgment difficult."

*270 Clarendon Street, Boston.*

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**Belgian Professors and Scholars.**—To the Editor of *Science*: It would seem to me that the present time is a particularly appropriate one for our university administrators and other organizations having to do with educational exchanges with Europe to give a special consideration to professors in Belgium. It is well known that in the universities of that country there are many men eminent in the different departments of learning, and in the present necessarily deranged conditions in their own country, an opportunity to teach, or work in laboratories, in America might be particularly welcome. There could naturally be no thought of a completion of the exchange by sending Americans to Belgium at this time.

It might also be a useful thing if some of the generous benefactors of American institutions could establish at least temporary fellowships or scholarships in appropriate American institutions, carrying with them a stipend fully sufficient for academic, traveling and living expenses, for the benefit of the young Belgians whose studies are interrupted by the war and who are not called to take up arms in behalf of their country.

*Yerkes Observatory, September 30.*

EDWIN B. FROST.

## TYPHOID FEVER IN 1913\*

By R. J. COLLINS and R. G. PERKINS

*From the Laboratory of Hygiene, Western Reserve Medical School, Cleveland*

This report is the third in the series and deals with a year of unusual interest, in that the flood conditions were remarkable, and the variations in the administration of the hypochlorite bore a distinct relation to the typhoid curve.

The sources of information were similar to those noted in the previous reports. We are especially indebted to the Department of Health for the use of their reports of incidence and mortality, and to the City Laboratory in that Department for their records concerning the sanitary condition of the water, and for their Widal records. In addition we are indebted to the Water Department for records of the administration of hypochlorite, to the hospitals for the privilege of examining their records, and to the Federal Weather Bureau for information as to winds, precipitation and ice. In the majority of cases the information thus obtained was supplemented by personal investigation into the individual cases.

It has been attempted to obtain the date of incidence rather than the date of report, as this makes a marked difference in the curve. In about seventy-five per cent of the cases this was done successfully, but could not be accomplished in the rest. This is partly due to the fact that in many of the cases among the foreigners the physician was called in at the last moment and no information could be obtained.

## Division of the Year

As in the previous report, the year has been arbitrarily divided into two parts, one including those months in which it is possible for cases to have been due to fly infection, namely, July to November, inclusive, and the other including those months in which such transmission is negligible, namely, January to June, inclusive, and December.

## Analysis of Incidence and Mortality

Compared with 1911 and 1912

Month	Incidence				Deaths			
	1910	1911	1912	1913	1910	1911	1912	1913
January	24	32	19	13	11	4	2	3
February	16	23	6	20	6	3	1	2

\*This work, done by R. J. Collins, was presented as a thesis in the regular Course in Hygiene in the Third Year.



## Analysis of Incidence and Mortality

Compared with 1911 and 1912

	Incidence					Deaths		
March	38	49	13	20	4	4	0	5
April	102	37	17	49	14	9	3	8
May	25	27	15	39	8	2	4	13
June	18	40	11	20	2	7	3	5
July	22	24	23	33	4	4	5	5
August	95	80	27	59	5	7	3	8
September	123	167	47	83	15	16	3	9
October	104	62	47	39	14	8	6	11
November	48	38	21	32	12	8	4	7
December	41	18	14	28	10	2	3	7
	656	622	351	436	105	77	37	83
Imported						7	2	5
					105	70	35	78
Per 100,000	85.4	93.9	58.5	68.7	16.0	11.73	6.16	13.4
						10.67	5.83	12.6
Typh. Deaths of all Deaths				0.0129	.0096	.0045	.0087	
					.0088	.0043	.00824	

To the 436 cases reported for 1913 should be added 11 cases which were first reported at the time of death. In addition there were 9 positive Widal's sent from the City Laboratory on patients who were never reported in as typhoid.

## Incidence and Mortality in Relation to Sex and Age

	Incidence				Deaths			
Age	Male	Female	Total	Per cent of incidence	Male	Female	Total	Per cent Mortality
0-1	0	0	0	0.00	0	0	0	0.0
1-5	8	8	16	3.30	3	3	6	37.5
6-10	34	24	58	12.3	3	7	10	17.2
11-15	31	12	43	9.1	2	2	4	9.3
16-20	30	20	50	10.6	4	3	7	14.0
21-30	113	56	169	36.0	19	8	27	16.0
31-40	55	13	68	14.4	7	2	9	13.2
41-50	17	10	27	5.9	9	2	11	40.7
51-	7	11	18	3.8	3	1	4	22.2
?	16	6	22	4.6				

In this table both out-of-town and town cases were counted.

The apparently uniformly high mortality would indicate one of two things; either that the epidemic and the endemic cases were of unusual severity or that many of the cases were not reported. According to the clinicians and the hospitals the cases were not unusually severe, so one may infer that the apparent high rates were due to lax reporting on the part of the physician. For this reason the per cent mortality at each age, even as a comparison between fatality at different ages, is of uncertain value.

### DISTRIBUTION

The map shows a very even distribution with the exception of a few small areas. The number of the cases in a given district is in general in proportion to the density of the population as determined from the city records, and suggests either a central source or a very thoroughly and evenly distributed set of local conditions. The only truly central source of distribution in Cleveland is the water supply, and this will be discussed in more detail later. As in previous years, the areas in which clumping of cases tends to occur are mainly in the newer districts and in the summer months. In Collinwood and in Nottingham, for instance, there were no cases reported until July, after which there was a constant local epidemic of a moderate degree lasting until November. In these newly annexed districts the streets are less well sewered, there are more stables, and more farm land with fresh manure than in the older parts of the city, with a consequently greater chance for the presence of flies. Other districts with an undue proportion of infection were found in the Third, Sixth, Seventh, Ninth and Thirteenth Wards, where the sanitary development has been less thorough. It is of interest to note that the local epidemics, if this description is correct, are smaller in size than in former years in these same districts, and that very marked efforts have been made by the Health Department to remove unsanitary conditions. This combination is very suggestive.

### Etiology

#### *Foods and Beverages*

No group of cases could be traced to any milk supply or food supply, or as a sequence of any assemblage at which a number of persons ate together.

#### *Flies*

As noted above, there were some districts in the city in which the marked increase during the fly season, associated with the



presence of flies and fly breeding places, and the rapid decrease with the onset of cool weather, suggest the activity of the fly as an etiological factor. In most of these districts, however, there were other factors, such as contact, use of local water supplies and so forth, so that the exact relation of the fly is impossible to determine. We see, however, no reason to withdraw from our former position that in this latitude the agency of the fly in the dissemination of typhoid has been frequently exaggerated.

### *Contact*

While by some a very large percentage of cases has been habitually set down to this factor, sometimes as high as forty-five per cent, it has always appeared to us more or less as a last resort, as the residue in which no other factor was conspicuous, and it has often seemed as though a little more proof would be at least of interest. When cases are scattered, as they are in Cleveland, more evidence than that several are on the same street is needed to prove contact, and when one considers that in the well known carrier cases, where the carrier handles food stuffs, there was a more or less constant succession of cases in the same house, the absence of such sequence save in rare instances is suggestive.

Judgment on this question may be reserved until the completion of the filtration plant gives us a period for comparison in which the central water supply may be definitely excluded.

### *Water Supplies*

These may be considered under two heads, local supplies, and the central city supply. Taking up first the local supplies, those in the more central parts of the city and along the parks are in the main the springs in the parks themselves, and the most used of these, as shown by repeated tests in the City Laboratory, are for the most part free from contagion. In the outskirts of the city, however, there are many of the old farm wells and springs still in use, which have become progressively polluted by the extension of the city population in advance of the city sanitation. Habit keeps up the use and one really has the rural problem complicated by the increased dangers due to invasion of city congestion. Many of the isolated cases in the suburbs, occurring in the summer months, probably divide their causative factors between the fly and the well, but in Nottingham there was a local epidemic probably largely or entirely to such a local water supply. The suburb (now the Twenty-sixth Ward), has also the city water, but for drinking purposes uses wells to a large extent. In one

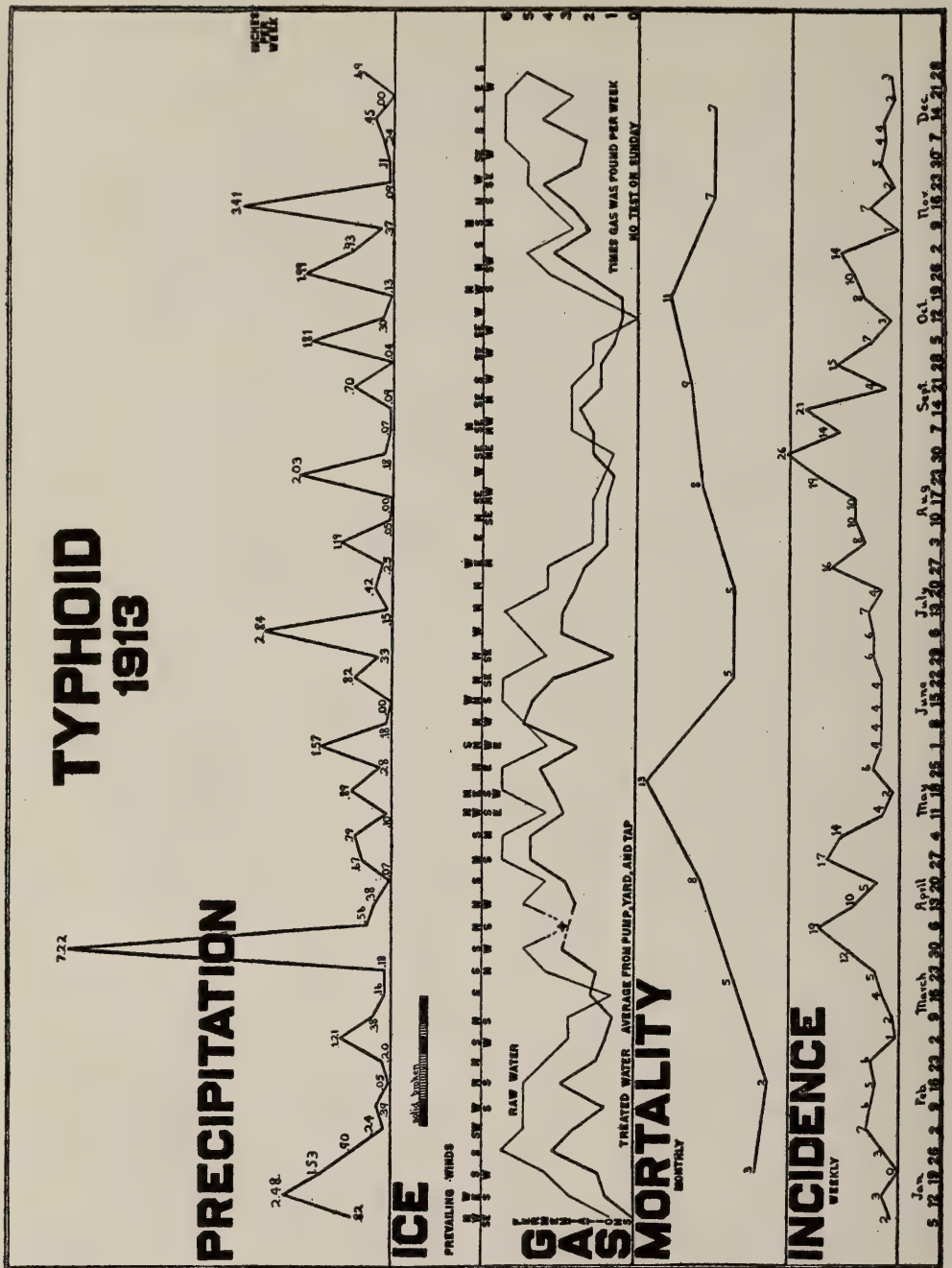


CHART I

This chart shows the summary of the typhoid for 1913 together with the rainfall, the weather reports, the laboratory findings and the incidence and mortality. The dates as shown in the lower border carry through vertically so that the incidence for any given week may be studied in relation to the weather and laboratory conditions in previous weeks, and the bearing of these conditions on the curve may be seen. The RAINFALL is in total inches per week, with the figure noted at the top. The heavy line shows the presence of an ICE sheet over the lake, the broken portion at the end indicating the period of floating ice. The prevailing WINDS for the week are shown below the ice record, the weekly prevalence above the line, the monthly prevalence below it. The portion marked GAS shows the fermentations as recorded in the City Laboratory. Here the upper line shows the number of fermentations of lactose bile each week in the raw water, while the lower line shows the average of the three daily examinations of water from three points in the service, the pump, where the water has been treated for about five minutes, the yard, where it has been treated about thirty minutes, and the laboratory tap, where it has been treated about an hour and a quarter to an hour and a half, according to the estimate of the water department. The curve of the MONTHLY MORTALITY has the total number of deaths for that month noted at the proper points, and the WEEKLY INCIDENCE below is marked in a similar manner. Comparison with the similar chart in the record for the previous year will show a general rise of the level, most marked in the spring, and coinciding with the period after the flood.



small district twelve cases occurred in four families and their wells showed a high degree of pollution. The grouping in the four houses and the lack of proper sanitary surroundings admits also, of course, the possibility of contact and of flies.

### *City Water*

The history of the city supply is best obtained from the records of the City Laboratory, from which we have taken the following details:

#### **City Water Supply**

Samples were taken daily from the tap at the City Laboratory, located at the corner of St. Clair and Ninth streets, from January to March, inclusive, and subsequently at the present quarters at 421 Superior avenue. In addition, samples were taken daily except Sundays and holidays from three openings at the East Forty-ninth street pumping station. Sample 1 represents *Raw or Untreated Water*, taken from the Main Shaft before the entrance of the hypochlorite solution. Sample 2 represents water *treated about two minutes*, and taken at the outlet of the pumps. Sample 3 represents water *treated about thirty minutes*, taken either at the tap in the yard or the tap in the wash-room,, according to the weather. Inasmuch as the Laboratory sample represents water *treated more than one hour*, a wide range of contact time could be compared.

Total counts were made daily, and presumptive tests for intestinal bacteria, using the routine lactose peptone bile method. For the first nine months of the year, all tubes showing fermentation were plated on Endo's medium, for the isolation of the fermenting organism. Inasmuch as these were practically uniformly isolated and no fermenters other than those of the intestinal group found, this detail was abandoned and the presumptive test has been accepted as conclusive, in agreement with the experience of other experts in water analysis.

Accordingly, in the Tables relating to Water, the term "Positive" indicates the fermentation of lactose bile within 72 hours, at body temperature.

Table 7 gives the extent of the findings of intestinal bacteria from each of the four sources during the year, and it is interesting to note that the reduction of pollution in the treated samples as against the raw samples is less than 50 per cent.

TABLE 7

Month	Lab'y Tap		Pump		Washstand Yard or		Raw	
	Total	% Pos.	Total	% Pos.	Total	% Pos.	Total	% Pos.
January	26	8	26	8	26	11.5	26	57
February	23	22	23	13	22	13.6	23	52
March	26	19	26	23	25	33.0	26	53
April	28	60	26	45	26	61.0	26	72
May	28	32	26	69	26	61.0	26	76
June	30	40	25	40	25	36.0	25	88
July	30	46	25	24	25	64.0	25	80
August	30	30	26	15	26	19.0	26	23
September	30	23	24	33	24	21.0	24	46
October	31	22	27	25	27	33.0	27	44
November	30	40	23	52	23	65.0	23	82
December	31	55	26	80	26	46.0	26	92
<hr/>								
	352	36	303	36	301	39	303	64

TABLE 8

	Raw Water Samples							
	1906	1907	1908	1909	1910	1911	1912	1913
January	12	12	16	1	5	16	*	18
February	11	11	12	6	10	13	9*	14
March	17	15	13	10	16	17	19	14
April	17	17	3	1	7	11	16	22
May	12	16	7	9	12	11	11	23
June	20	16	10	4	17	15	18	22
July	17	17	11	9	14	12	17	19
August	22	13	16	10	18	8	16	6
September	21	16	7	14	14	2*	14	11
October	21	16	13	12	21	*	16	13
November	14	15	7	9	14	*	12	19
December	7	5	2	12	9	*	4	25
<hr/>								
Total	191	169	117	97	157	104	152	206
Monthly								
Average	16	14	10	8	13	12	14	17

\*Chlorine started September, 1911, and no raw samples were taken until February 8, 1912.

Tables 8 and 9 relate to the changes in the character of the water in connection with the chlorine administration. Table 8



shows the monthly findings of fermentations of lactose bile in *untreated water* since the use of this medium was begun. It shows clearly that the water as obtained from the Four Mile Crib has been more or less constantly polluted. A positive result is recorded in these summaries if there was gas in the one-tenth, the one or the ten cubic centimeter tube.

TABLE 9

Month	1911		1912		1913	
	Times	Parts per m. m.	Times	Parts per m. m.	Times	Parts per. m. m.
January	----	-----	12	0.732	14	0.337
February	----	-----	6	0.719†	15	0.371
March	----	-----	15	0.541	11	0.387
April	----	-----	19	0.566	27	0.579
May	----	-----	20	0.493	25	0.585
June	----	-----	12	0.407	23	0.579
July	----	-----	9	0.319	23	0.593
August	----	-----	8	0.450	16	0.453
September	6*	-----	8	0.409	17	0.429
October	16	0.944	7	0.403	14	0.460
November	11	0.872	9	0.408	21	0.554
December	9	0.586	6	0.389	24	0.637
Total	40	-----	128	-----	230	-----
Monthly Average	----	-----	11	-----	19	-----

\*Began September 11.

†February 1-22, inclusive, 0.750.

February 23-29, inclusive, 0.338.

Table 9 shows the monthly fermentations in the *treated water* since the beginning of the chlorine treatment and the average monthly dosage in parts per million as calculated from the daily reports received from the Water Department. It will be noted that there has been a marked increase in fermentation during the last year since the reduction of the dosage from the original strength. The column of "times" is made by taking in each month the total of the days in which fermentation was found in any one or more than one of the three treated samples.

The spring epidemics in 1912 and 1913, associated with heavy rains and thaws, are indicated by the increase in the treated water pollutions in three of the spring months. It should be noted that the apparent excess of pollutions in the treated water samples over the raw water samples is due to the fact that each

day three treated samples and only one raw sample are examined. There is apparently a marked irregularity in the degree of pollution at different times, so that two samples taken an hour or so apart may vary markedly.

It will be noted that the monthly average for pollutions of RAW WATER with the exception of 1908 and 1909, which were free from excessive and sudden rainfalls, has been about the same for the last eight years; also that the monthly average in the two complete years of chlorine treatment is no better than in the untreated. It is evident that the original statement that the minimal dosage of hypochlorite necessary for efficiency must not fall below 0.7 parts per million was correct, and that when storm conditions of any usual degree obtain, the dosage at present in use is of no practical value, the pollutions being as frequent in the treated as in the raw water.

#### Imported Cases

These cases are divided into those CERTAINLY originating out of town, and those PROBABLY or POSSIBLY out of town. All cases which developed typhoid within three weeks of their arrival have been classed as out of town cases, though it is, of course, possible that some of these had a short period of incubation and actually obtained their infection through local means. Cases which resided in Cleveland but were constantly back and forth, or who had made visits to towns in which typhoid was prevalent, have been considered as *possible*. The months in which these cases occurred are as follows:

Month	Out of town	Possibly out of town
January	2	1
February	2	1
March	1	3
April	3	2
May	5	1
June	2	0
July	6	0
August	20	14
September	7	2
October	4	4
November	3	3
December	3	1
	—	—
	58	32

Deaths in out of town series (column 1)—5.



The cases in August and September involve half the total for the year and investigation shows that they came from summer resorts or similar places where there was typhoid present and plenty of means of transfer. These cases were omitted from the calculations, but the possible out of town cases involving a number of railroad and traveling men, absent for short periods have not been omitted. It is true, however, that the records of the places to which they were in the habit of going showed high typhoid rates, so that there is a margin of error in not omitting them.

### Summary and Conclusions

As compared with 1912, there were more than twice the number of deaths from typhoid and the proportion of all deaths represented by typhoid deaths was also doubled. As there is no reason to think that the epidemic and the inter-epidemic cases were more severe than in the past year, according to the reports of the physicians and of the hospitals, it is fair to infer that the apparent increase of severity represented by the difference between 18 and 13 per cent is due to lack of reporting rather than anything else. On the theoretical basis of an eight per cent mortality, there were about 975 cases in 1913 as against about 462 in 1912. The weather conditions were more trying than in 1912, and the water was much more disturbed, as may be noted from the turbidity figures, and the administration of chlorine was at all times below the amount figured necessary. As may be seen in Chart 2, the increases in the hypochlorite follow after the rise in typhoid incidence, instead of accompanying the water disturbance, an excellent example of what happens when sanitary matters are headed up to experts in other lines but without sanitary experience. The absence of any large number of cases which may be attributed to etiological factors other than water, the relation of the rise and fall of the local typhoid in association with the water pollutions, and the relation of these to the weather conditions, as exemplified in the charts, leads us to believe that the greater part of the Cleveland typhoid is water borne. The remarkable fall following upon the full dosage of chlorine in 1911, with a consequent marked reduction of the total number of cases in the city, was followed by a steady increase after the administration of chlorine was reduced, forming the usual vicious circle where the sewage goes back into the main source of supply, until now the condition is very similar to that before the use of the disinfectant. The spring rise after

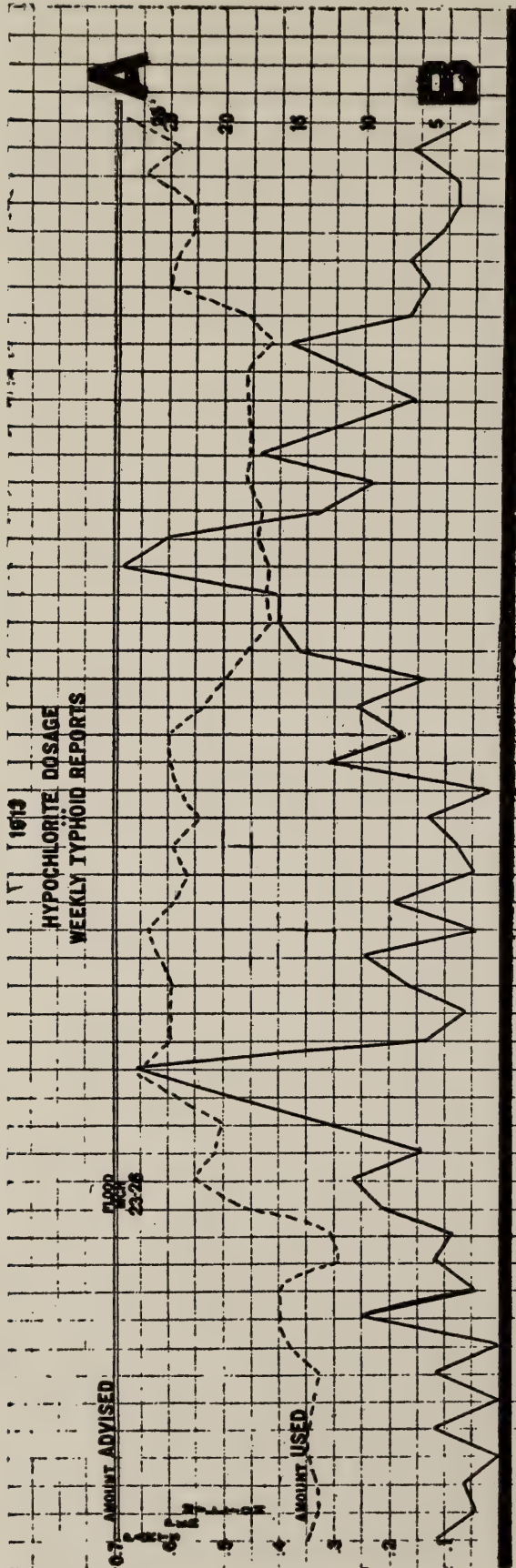


CHART II

This shows the relation of the dosage of hypochlorite (A) to the reported weekly typhoid incidence. (B) The weekly incidence in this chart includes *all* cases as *reported*, without regard to their origin or the actual date of onset. The upper line shows a dosage of 0.7 parts per million, which was advised as the minimum necessary in ordinary conditions of the raw water, and it will be seen that even with the extraordinary conditions following the spring floods this line was not reached.

The date of the floods is noted on the upper line, and here as well as all along the line it will be seen that the increases in dosage *follow* rises in total reported cases.



the flood, however, had the benefit of convincing the city that immediate action was necessary, and to this end the Filtration Commission was established, and the construction of an adequate mechanical filtration plant is now progressing rapidly. The completion of this project, and the results of our work for the next year or so will complete the series, which should be of value as covering the period of an infected and untreated water supply, an infected and adequately treated water supply, an infected and inadequately treated water supply, and an infected and filtered water supply.

**United States Civil Service Examination for Epidemiologist, on December 15, 1914**—The United States Civil Service Commission announces an open competitive examination for epidemiologist, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Public Health Service for service in the field, at a salary of \$4,000 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will be to make laboratory and field investigations of the diseases of man in relation to prevalence, causation and methods of control, and to conduct field studies of public health matters. It is desired to secure persons thoroughly qualified to do laboratory and field research work in epidemiology, and to organize and conduct such work in the field.

Competitors will not be assembled for examination, but will be rated on the following subjects, which will have the relative weights indicated:

Subjects	Weights
1. Education .....	25
2. Experience and fitness.....	50
3. Publications .....	25
Total .....	100

Graduation with an A. B. or B. S. degree from a college or university of recognized standing, and graduation with an M. D. degree from a medical school of recognized standing, and at least five years' experience in epidemiological research, including field studies and laboratory technique, and at least five years' public health service under Federal, State or municipal authorities, are prerequisites for consideration for this position. Experience in epidemiological research and experience in public health service may be concurrent.

Statements as to education and experience are accepted subject to verification.

Applicants must have reached their twenty-fifth but not their fortieth birthday on the date of the examination.

This examination is open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for Forms 304 and 2095, stating the title of the examination for which the forms are desired, to the United States Civil Service Commission, Washington, D. C., the Secretary of the United States Civil Service Board, Post Office, Boston, Mass.; Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, Ohio; Chicago, Ill.; St. Paul, Minn.; Seattle, Wash.; San Francisco, Cal.; Customhouse, New York, N. Y.; New Orleans, La.; Honolulu, Hawaii; Old Customhouse, St. Louis, Mo.; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed, excluding the medical certificate, and filed with the Commission at Washington prior to the hour of closing business on December 15, 1914.

Issued November 11, 1914.

## THE PROTEID CONTENT OF CEREBRO-SPINAL FLUID

By O. P. BIGELOW, M. D., Cleveland.

The following is a report of the results of four hundred and forty tests for proteids in the spinal fluid, with some conclusions which I would draw from them.

Various methods may be used to determine the presence of proteids in this fluid, probably the best known of which is that of Nogouchi. I settled upon a method of my own when beginning the study of the subject seven years ago, and since it is easy and gives satisfactory results its use has been continued ever since.

The addition of an equal volume of saturated solution ammonium sulphate to the fluid precipitates its globulin content. Saturation with magnesium sulphate crystals produces the same result but it is not quite so easy of application. An equal volume of 95 per cent alcohol added to spinal fluid throws down a heavier precipitate, composed, as far as has been determined, of its whole proteid content.

Half saturation with magnesium sulphate, i. e., the addition of an equal volume of a saturated solution of the salt, followed by boiling, throws down immediately a precipitate corresponding in amount with that obtained by half saturation with ammonium sulphate in the cold. Out of fifty-seven cases in which a comparison was made of the results of these two tests on the same specimens of fluid, the precipitate seemed identical in amount in thirty-four. In twenty-three the amount was apparently a little less with the use of the ammonium salt and in one case a little greater; however, the precipitate produced by magnesium sulphate and heat is usually of a more flocculent character than the other, which makes it difficult to compare them exactly in many cases. In no case was one found to be present without the other; and one seems safe in concluding that half saturation with magnesium sulphate followed by boiling precipitates the globulin content of spinal fluid, although I have been unable to find any description of this test in works on organic chemistry.

The addition of two or three drops of dilute acetic acid to the boiled solution of magnesium sulphate followed by a second boiling, results in a heavier precipitate in about 95 per cent of cases, while in the remaining 5 per cent there is no change. The precipitate never diminishes in amount. This second precipi-



tate corresponds with that produced by alcohol as described above. Out of fifty-seven cases in which the two were compared I found them identical in amount in forty-seven. Alcohol gave a slightly greater precipitate in three and magnesium sulphate in seven; but here, too, there is usually a difference in degree of flocculency which would probably explain most of the apparent difference in these ten cases out of the total of fifty-seven.

A simple test for albumin by heat and acetic acid as in the case of urine, was found to be very unsatisfactory. A complete precipitation of the proteid content is not obtained by boiling the clear fluid, as shown by comparison with other methods; and after the addition of acetic acid the amount usually becomes even less, probably due to the formation of acid albumin, which is soluble. This last action is prevented when magnesium sulphate is present in the amount described above, apparently because this agent cause coagulation of the precipitated proteid.

In order, then, to test for both globulin and albumin, i. e., the total proteid dissolved in the cerebro-spinal fluid, in what seems to be the quickest and easiest way, proceed as follows: To clear spinal fluid is added an equal amount of saturated solution magnesium sulphate. The upper portion of the mixed fluid is boiled in a narrow test tube, the lower portion left unheated for comparison. I have classified the resulting cloudiness in the boiled

TABLE I  
Globulin in Cerebro-Spinal Fluid





In the first column the diseases are arranged with regard to average value of globulin found in each. The values in the third column of figures are obtained by subtracting those in the first from those in the second.

It is evident from a study of tables I and II that the determination of proteids alone is not very decisive in diagnosis, unless there is at least a trace of globulin or a large trace of total proteid, when a syphilitic or parasymphilitic disease is indicated. Two rather striking points brought out by tables I, II and III are the large amount of globulin found in cases of paresis and of albumin in many cases of senile dementia. A moderate increase of globulin may be expected in cerebro-spinal lues, tabes and acute meningitis and in occasional cases of multiple neuritis and uremia, and an increase in albumin may be found in multiple neuritis, dementia precox, arteriosclerotic insanity, herpes Zoster and Friedrich's ataxia. The number of cases examined in some of these diseases is hardly large enough for one to draw definite conclusions as to the possible findings.

TABLE III  
Proteids in Various Diseases

	Globulin	Total Proteid	Albumin
Normal	0	1.83	1.83
Brain Tumor	0	1.83	1.83
Amentia	0.25	1.85	1.60
Epilepsy	0.28	2.00	1.72
Manic. Dep.	0.33	2.00	1.66
Chronic Alcoholism	0.50	1.87	1.37
Herpes Zoster	0.50	3.00	2.50
Dementia Precox	0.50	2.76	2.26
Arteriosclerotic Insanity	0.63	2.72	2.09
Multiple Neuritis	0.80	2.80	2.00
Senile Dementia	0.83	3.50	2.67
Multiple Sclerosis	1.00	2.67	1.67
Uremia	1.25	2.75	1.50
Cerebro-spinal Lues	2.28	4.28	2.00
Acute Meningitis	2.40	4.20	1.80
Tabes	2.50	3.50	1.00
Paresis	3.24	4.71	1.47

Taken in combination with physical signs and the results of other tests, however, the proteid estimation has considerable corroborative value. There are, too, certain conditions under which it is especially valuable, due to the fact that in syphilitic and parasymphilitic disease of the central nervous system it is much less subject to variation than are the other pathological constituents of the cerebro-spinal fluid, the cellular increase and complement fixing substance.

In some cases, for instance, we can obtain spinal fluid only post mortem. I do not know whether or not the Wassermann

reaction can be obtained under these conditions, but the cell count is very unreliable, increasing immediately and rapidly in most cases after death. But the proteid content remains practically the same as before, showing only such variation as is observed in a series of examinations during life. I have arrived at this conclusion after tests on post mortem fluid from fourteen cases.

Following antisyphilitic treatment we expect a marked variation in cell count and Wassermann reaction, but the proteid content does not respond in the same way. Of five cases of paresis in which I followed the proteid reactions for several weeks during treatment with mercury, three showed an increase at the end of the period of observation, one a slight decrease in globulin and one the same reactions as at the beginning. Two cases of cerebrospinal lues showed no change.

A third condition is that shown during convulsive seizures in paresis. In five such cases I found a marked decrease in the cell counts, in three of them to the normal limit. But the proteid does not show a corresponding diminution; there is even an increase in most cases which serves as a control, from a diagnostic standpoint, on the cellular decrease.

Just what produces this combination of convulsive seizures, low cell count and high proteid content in paresis I am not able to prove. I have noticed in two cases, however, that they followed mercurial treatment. It is possible that the mercury kills some of the spirochaete and arrests the pathological process which is producing the high cell count. Toxins set free from the dead organisms might cause the convulsions by their irritant action and degeneration products resulting from the toxins or even the toxins themselves dissolved in the spinal fluid might furnish the increased amount of proteid. According to this theory the occurrence of the syndrome independent of antiluetic treatment must be explained by periods of excessive tissue degeneration or death of an unusually large number of spirochaete from some cause arising within the body. A practical point to be remembered is the danger of a vigorous antisyphilitic treatment in paresis, since the convulsive seizures or maniacal attacks which may result are the usual cause of death in this disease.

It is not very unusual to find a slight yellow tinge in the fluid from cases of paresis, and these yellow fluids always give very marked proteid reactions. I believe that this color and increase of proteid content are both to be explained by slight hemorrhages on the surface of the brain as stated in my article on cerebral hemorrhage in the *Cleveland Medical Journal* for April 1913.



**ELIMINATION OF SPEECH AND VOICE DEFECTS\***

By BERNARD CADWALLADER, Cleveland,

Permanent elimination of speech and voice defects, or speech and voice recovery, rests upon perfect co-ordination of speech and voice apparatus, diaphragmatic breathing and absolute mind control.

The entire speech and voice machinery of the speech defective is in a state of chaos, similar to an engine running wild, lacking the guiding, controlling hand, will and mind of the skillful engineer.

Stuttering and Stammering (I use this double term advisedly and refer you to my article in the *Cleveland Medical Journal* of December, 1911, presenting in detail the classification of each, and my reasons for so doing) does not come from malformation of the organs, but from a wrong activity of the organs. Whatever mystery there is about stuttering and stammering comes from a lack of knowledge of physiology and psychology of speech, and also from not knowing just what are the wrong conditions, the wrong positions, and the wrong movements during the activity of the organs concerned. In spite of what is claimed to be known of speech, of its visibility, etc., it cannot be seen, and we know not for certainty just what takes place during the speech act. The speech machinery in normal activity cannot be seen until some non-interfering way is discovered of illuminating the parts. The Laryngoscope in use makes normal speech and even normal phonation impossible, so that it is of little use in solving the problems confronting the speech specialist; for speech defects are caused by the interfering action of certain muscles set into activity by wrong speech concept, or by abnormal or subnormal conditions arising from imperfect co-ordination. It may also be defined as a conflict between the voluntary and involuntary systems—using the word “system” as including the various specific systems as differentiated by medical authorities.

The way a child learns to talk is the way the speech defective must learn to talk, if he is ever to reach permanent normal speech. The brain centers and the nerve centers must be permitted to do their work uninterfered with by any conscious effort on the part of the speech sufferer.

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\*Read before the Ophthalmological and Oto-Laryngological Section of the Academy of Medicine

### Peripheral Effort Must Be Stopped

Phonation is just as much an involuntary act as deglutition. If one should set out to control the swallowing of food or drink by attempting to work a particular muscle disconnected from its associate muscles, he would fall into trouble, but his attempt would be no more fruitless and foolish than the attempt of the stutterer and stammerer to control his speaking by a similar effort.

The first step, then, is to form a right speech concept, to *know* definitely and clearly the process of speech control. In none of man's other functions is there greater proof that "mind is master of matter."

From now on, the character of the speech process and habit will be gradually reversed, mentalizing more and mechanicalizing less.

I have made five divisions to my present plan of elimination:

First. Training speech muscles through sense of touch at speech points.

Second. The elimination of the monotone through inflection.

Third. Diaphragmatic breath control to eliminate throat clutch.

Fourth. The short phrase to eliminate rapid continuous speech and to prevent the possibility of talking on a breath exhaust.

Fifth. Permanency of new speech habits through reading aloud and conversation.

### Training Speech Muscles

Our work of speech reconstruction will begin with letters, then words, and afterwards phrases.

I give the pupil each letter of the alphabet to make so that I may observe how he makes them. We find an overwhelming sympathetic muscular activity. For example: In making the "B" (a labial) which should be made with a delicate touch, or meeting of the lips, and the contact broken as quickly as possible, we find the entire power of jaw, lips, tongue and throat involved in its production.

A classification of the consonant is now presented.

The Linguals, L, N, D, T, S, Soft C, made with the tongue—just the tip of the tongue delicately touching the hard palate as near the teeth as possible, with jaw, lips and throat in repose.

The Labials, M, P, B, W, made with the lips daintily and



delicately touching each other, with jaw, tongue and throat in repose.

The Gutterals, K, Q, G and hard C, made in throat, with lips, jaw and tongue maintained in absolute nonactivity and repose.

The same exacting discipline and training on the Dento-Labials, F and V, Dento Lingual, Th, and Aspirate.

From now on, each speech part involved (in making such classification) must act independently and without sympathetic action of the other parts.

Hitherto, the speech defective has been in bondage to the consonants. The vowels have been slighted. In our next progressive step of elimination, the study of words, we shall reverse this. He will now slight the consonants and linger or raise on the vowels. The vowels are the melody or song of the words. In them lie not only the beauty and power of speech, but his safety.

In word study, I introduce one of the most revolutionary factors of elimination, viz: inflection and natural accents of words. When formulating my plan of elimination, I found the more I safeguarded the pupil's work with symbols or markings of a distinctive character to represent the principles to be used, to simplify the technical phrase, the more completely could they concentrate the mind on the sensations of touch of lips, teeth, tongue and throat, etc., thereby increasing the efficiency and quality of the work.

The complicated and numerous markings of the etymologists in emphasis and inflection I found too cumbersome. My classification of words must be as simple as possible. I call the word with one syllable the inflected word. The word with two or more syllables, the accented word. Over the inflected word, I use a large V, over the accented word, an inverted ( $\wedge$ ), and smaller inverted ( $\wedge$ ), one to each syllable. This develops smoothness and perfection of syllabic development, mentally and in utterance. This helps wonderfully in establishing deliberation and poise, and rythmic flow, eliminating the irregular, jerky spasmodic banging together of syllables and words against each other.

People generally would be greatly benefited in their speech if they would take a course of such training and discipline. As a people, we should be ashamed of our speech and our speaking voices. The same slovenliness, lack of interest and ignorance

would not be tolerated in anything else. George Eliot, in commenting on English as spoken, said: "They have a pronunciation that crushes out all color from the vowels, and jams them between jostling consonants." "Language is the tool by which all knowledge is acquired."

### **Breathing**

Full, deep diaphragmatic breathing is of the utmost importance to the speech defectives. This must be established to relieve the vocal cords of the imposition of breath control and inevitable throat clutch.

Exercise: Stand erect, chest high and active, while taking in breath, expand at the waist with diaphragmatic muscles, hold the latter tightly while counting 20, slowly increase gradually to 40. The full, tight sensation in the throat at first experienced during this exercise will pass away when the diaphragm muscles have become accustomed to their work—leaving the throat free and untrammelled.

### **The Monotone**

Webster's unabridged definition of speech is "a going up and down in the voice." Perhaps the most common and the largest contributing cause of all speech defect is the monotone, yet strange to say all the so-called guaranteed-to-cure schools of stammering are based upon this very defect, thereby intensifying the stammerer's condition and making him more helpless and hopeless. He cannot raise above the tone or pitch upon which he starts because of the cramped, fixed condition of the vocal cords—hence the enforced monotone.

The permanency of our new speech habits is established through reading aloud and conversation.

We have several links yet to add before we introduce conversation as the final factor in elimination.

First—Phrase analysis.

Where to raise voice.

Where to rest voice.

Where to breathe.

Speech figures will be a help in deciding on which words to raise, nouns, verbs, adjectives, etc. For the want of a better term, I refer to this group as Mind Measurement of phrases.

Second

Reading aloud with markings.

Reading aloud without markings.



The necessity for reading aloud.

Hitherto our principles have been studied separately. Our next step is to blend them in actual speech. To go directly into conversation at this stage would defeat our purpose. He has not become familiar enough with his new speech principles to allow mental diversion.

In reading, the thoughts and words are chosen for him, enabling him to focus his entire mental concentration on his markings. He cannot now go astray. Every phase will be perfect. This will be continued until smoothness, freedom, poise and confidence are established.

Conversation antiphonally will be the beginning of the end.

### **Treatment of Small Children**

It is altogether unnecessary to allow a small child to drift into a fixed habitual speech defective condition because it has not reached the reading stage. My plan with 4, 5 and 6-year-olds works satisfactory.

I work through picture books and ask them to repeat after me whatever we see and mark them in a similar way to the large card shown.

I insist, of course, that the mother (or someone who is with the child at home) comes with the child, and thoroughly understands the work to be done at home, so that in her conversations with him she is using whatever instructions may have been given to correct sluggish, awkward or weak muscles of tongue, lips or throat.

"Precepts and rules are repulsive to a child, but happy illustration winneth him," says Tupper. To bring about exaggerated use of subnormal or weak muscular conditions, which the majority of small children's conditions are, I give an exercise, the appearance of a game, thus working at *the cause* unconsciously, producing sounds rather than speech.

The value of all the practical work lies *not* in the knowledge of it, but in daily application until incorporated into new speech habits. The question always asked, "How long will it take to cure me permanently?" will depend upon the responsiveness of the abnormal speech conditions, the industry, patience and perseverance of the student. No other branch of pedagogy is compelled to change the habits of from five to fifty years' standing, daily, hourly becoming more firmly fixed. Add to this difficulty the var-

ied conditions and need of each individual, which demand complete mental concentration of teacher and pupil. Therefore, treatment not based upon this individualistic basis with adults must logically fail.

### Inflection

Hitherto, the vowels have been slighted, the consonants made too prominent and exaggerated unnecessarily and disastrously. This will now be reversed. Raise and linger on the vowels, the consonants daintily touched and left quickly to get to the vowels, the song and melody of the word. "Take care of the consonants and the vowels will take care of themselves." This will prove to be the most interesting work in the entire therapy of elimination.

Make the strong words carry the meaning and the unimportant words no more than they should have. I refer to the strong words as sense bearers.

This subject is one of the most vital of all. Space forbids further development.

### Direct Tone Work

Exercises for direct tone cannot be used safely where there is vocal derangement. Such must first be treated with indirect tone work, so delicate and varied in its scope and need it could hardly be presented here. A jack-knife in the hands of a small boy is not a good working combination. The knowledge to use a tool is of more consequence than the possession of the tool.

The speech specialist must be a voice specialist, too. He must know the principles and experiences of the use and preservation of the singing voice. Without this complete knowledge and experience it is impossible to eliminate all imperfections of voice and speech.

1. *Preparation for Inflection.* Sustained tones to be used diatonically—whole steps and semi-tonically—half steps.

2. *Octave Study of the Portamento*, or carrying the voice up and down. Also diatonically and semi-tonically. If voice range is not equal to the octave easily, use black notes arpeggio c—e—g.

3. *For Flexibility.* This exercise should not be used until the muscles are strong enough to resist its strong up-pulling rhythmic character. The vowel "oo" is suggested because of its favoring the desired position of the vocal muscles during tone production.



Guard against breath exhaust.

**These Exercises to be Taken Slowly at First**

A boy, eleven years of age, came to us recently. He both stammered and stuttered. After a few lessons, discovered his speech trouble was caused by weak vocal cords through mouth-breathing—congenital adenoids, his cords would phonate only through force in the highest register.

The adenoids had been removed one year before. The operating physician insisted the voice and speech trouble would pass away. The parents wisely saw the boy was gradually becoming worse and needed assistance. Many physicians do not seem to realize that custom and habit are as difficult to fight as disease. After the boy's voice had been made strong by suitable exercises and nose-breathing established, it required but a few weeks to change his speech difficulty through inflection, short phrases and avoidance of talking on exhausted breath.

**The Larynx**

The position of the larynx must not be omitted as a factor in speech freedom. Its correct position will add resonance, good tone quality to the voice and prevent crowding the base of the tongue. The efforts of the stutterer and stammerer to speak have made the up-pulling muscles overwhelmingly strong and the down-pulling too weak to act.

In our student days, the late Emilio Belari rightly insisted on the position of the larynx as being of the utmost importance to the development of the singing and speaking voice.

So much has been written and said about speech defects that voice defects have been overlooked. Weakened vocal cords making inflection on which so much depends an impossibility, and the monotone a certainty—and derangement of the laryngeal muscles are responsible for much of the trouble which cannot be reached through the articulating machinery.

**Temperament**

We have hitherto dealt only with the process of defective elimination. It is just as important to take into consideration the individuality and personality, the capacity for mental concentration, industry and patience of the stutterer and stammerer. These traits are as varied as the speech defects, and upon the skill and tact used in handling them depends the success as largely as upon the solution of speech problems.

Nervousness is not a cause of speech and voice defects, else

why should they become self-possessed, calm and confident when speech freedom is gained.

Nervousness is a by-product of stuttering and stammering.

Did time permit, I would like to go into detail relative to interesting cases of sub-normal speech and voice conditions sent to me recently by Doctors Kerr, Howard, Cogan and Abbott.

One of the most remarkable cases I have ever had was the one sent by Doctor Abbott—a young man, 17 years of age. A Boston physician and surgeon had told the mother the boy was born without vocal cords. When I had done all I could for him the young man's brother told me he almost raised the roof off the Lennox building while under the influence of an anesthetic. This vocal development had been produced in about eight months of daily work.

#### Lalaphobia

The speech defective acquires many other defects of speaking and thinking. He may indistinctly and hurriedly develop a weak and husky voice. He may develop so much timidity or bashfulness that he becomes a saddened recluse or a startling combination of verbosity with awful grimaces. His power of attention and his readiness of thought are frequently seriously affected through multiple thought, word substitution and use of synonyms.

214 *Permanent Bldg.*

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**The Renouncing of Honorary Degrees.**—To the Editor of *Science*: In your issue of October 2, I notice certain German professors have stated their intention of renouncing the honorary degrees conferred upon them by British universities. If they imagine they can do this they are, as regards Cambridge, imagining a vain thing. Our statutes, which are acts of parliament, give no power, even to the authorities of the university itself, to take away honorary degrees.

The utmost the German professors can do is to cease to use them, but they will still remain honorary doctors of Cambridge. They will go down to the tomb with this indelible stain upon their names.

A. E. SHIPLEY,

Christ's College, Cambridge.



# REPORT OF A CASE OF OPTIC ATROPHY FOLLOWING WOOD ALCOHOL POISONING\*

By SAMUEL S. QUITTNER, M. D., Cleveland.

This case report is descriptive of a male—sixty-one years of age.

*Previous History:* Denies ever having syphilis. Has had gonorrhea twice. Negative as to general disease. Was a heavy drinker for years, but in the past two years states he drank practically very little—in fact, has not been intoxicated during this period.

*Present History:* On July 4th of this year he went to a paint shop for a pint of wood alcohol. He and another friend then imbibed its inviting contents, his friend consuming but very little (a small glass, as he states), and he draining the rest. The alcohol was taken diluted with water. The patient then stated that after taking but very little (although during the course of the day he consumed the remainder of the pint) he “went out of his head” and remained that way for three days. At no time, he stated, was he wildly maniacal or had to be strapped down. On July 8th—four days later—he suddenly went blind and saw absolutely nothing (not even daylight). For a period of two weeks he remained this way and then the sight gradually returned so that he was able to go about. During this period he went to no physician about this important event and it was not until September 9th (when I first saw him) that he considered it a matter worth consideration.

The vision at his first visit was—

O. D.—Fingers at two feet.

O. S.—Fingers at one foot.

The eye grounds showed a picture of optic atrophy fairly well advanced, the nerve head paler to a marked degree, and some of the vessels contracted, especially of the disk.

The perimeter readings showed a contracted field in a regular manner of about half the normal, the contraction being greater on the temporal side. Both eyes approximately showed

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\*Read before the Ophthalmological and Oto-Laryngological Section of the Cleveland Academy of Medicine.

a reading on the temporal side from 35-40 degrees—below about 50 degrees; above 30-35 degrees, and on the nasal side 35-40 degrees.

The patient failed to recognize red or green in any quantity, but recognized blue when a large piece of yarn was presented—but failed to recognize it in a small amount.

He stated that he saw best toward evening—nyctalopia. In this connection I might note he always wore blue glasses, appreciating, himself, the benefit of reducing the dazzling of daylight.

The patient was placed on 1/30 grain of strychnin sulphate three times a day, and later the dose was increased to 1/15 grain twice a day. On a later examination he showed an improvement in sight, the right eye now recognizing fingers at 5-6 feet and the left eye at 1½-2 feet.

The interesting features in this case are the sudden and acute onset of the trouble, with complete blindness, and the early picture of optic atrophy. Ordinarily one would not expect a complete blindness, or (if the pathology of the condition is accepted of a neuritis in the retrobulbar region) a picture so early of atrophy with the perimeter finding of a contracted field. Ordinarily the limits of the field remain normal, with a central scotoma due to the maculo-papular bundle being first involved. Did the original lesion consist of acute poisoning of the retinal filaments of the ganglion cells, with a subsequent ascending degeneration of the fibres, or was it a retrobulbar neuritis with a descending degeneration? As for the first supposition, it seems the sudden and complete cessation of sight would speak in its favor, for it showed a profound toxemia in these elements. Such an argument is offered in like cases when due to poisoning with quinin. As for the second supposition, the early picture of advanced atrophy of the nerve-head would speak in its favor, for there may have been some papillitis (due to an extreme swelling in the retrobulbar region of the nerve), and at the time of the first examination had subsided and thus explained this early picture. It seems to me these are worthy features for consideration.

5512 Woodland Avenue.



# The Cleveland Medical Journal

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Short notes upon clinical experiences or reports of interesting cases will be welcomed by the editors.

Original articles are accepted for publication by this Journal only with the distinct understanding that they are contributed solely to this Journal and will not be published elsewhere as original.

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## EDITORIAL

### SUBSTANTIAL APPRECIATION

At least once a year, and especially at this particular season, we feel called upon to use the Editorial Column in behalf of our Advertisers.

We wonder how many of our readers, particularly those living in Cleveland, realize or care that our Advertisers furnish us with the very means of existence.

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Substantial appreciation is what counts with the Advertiser.



## DEPARTMENT OF THERAPEUTICS

Conducted by J. B. McGEE, M. D.

**Tuberculous Glands:** In the *New York Medical Journal* for October 3

Robert T. Morris comments on the non-operative treatment of tuberculous glands of the neck. His former method of treatment consisted of a very thorough removal of the glands, *en masse*, avoidance of nerve branches, and other technical details which were quite perfect from the surgical point of view. In a number of cases there was recurrence of the tuberculosis, and when he lost a beautiful young girl from acute general miliary tuberculosis, succeeding immediately upon operation, he took up the study of some of the methods for non-operative treatment, which had been reported from time to time, but without engaging the acute interest of surgeons. The first plan consisted in the use of the injection of a seven per cent solution of iodoform in oil, according to the plan of Mosetig-Moorhof. From one to three minims of this solution were injected into each one of the larger glands at a sitting, the injection being sometimes preceded by a trifle of cocaine. In addition to the local treatment the patients were placed upon hygienic and medical resources suitable for tuberculosis in general. The results of the treatment were surprisingly good, and without need for surgical interference, excepting when glands had actually broken down and were suppurating. The injections were made at intervals of three or four days, and the younger patients objected very much to the treatment. On this account the Bier method of local hyperemia was used by having the reclining patient rest, first with the neck against a hot-water bag for a minute or two, then against an ice bag for a minute or two, then back to the hot-water bag, and ice bag, alternately for an hour, once or twice a day. This treatment proved quite as successful as the iodoform injection method, and even young patients did not object. The length of time required, and attention, were the only objectionable features. He commonly observed a practical cure of tuberculosis of the glands of the neck in anywhere from one to six months of treatment. He has also used the high frequency electric current and more lately the new high penetrating X-ray. In a number of cases these proved the most effective treatment, the expense being in some cases an objection. More recently he has taken up the idea of adding to the other resources the treatment with tuberculin. He hardly feels that he is doing the right thing for his tuberculous patients of any sort unless the tuberculin treatment is a feature. In his hospital service for the past ten years he has treated considerably more than one hundred cases of tuberculous glands of the neck without operation in a single one, excepting for glands actually suppurating, and for these alone, leaving the remaining to be treated by some one of the conservative resources. In outpatient work it is practically impossible to get end result reports. In private practice his work is almost wholly consultation work, and his reports come from time to time from physicians. But the significant fact is, that previous to ten years ago he operated many times a year for removal of these tuberculous glands of the neck, but in the past ten years he has not operated once for non-suppurating glands.

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**Expectorants:** In the October number of *The American Journal of the Medical Sciences*, Joseph L. Miller considers the clinical value of expectorants. So far as he has been able to determine, the medical literature does not contain any accurate bedside observation on the value of expectorants. There are many references of medical men's impressions, but nowhere carefully recorded facts that will bear close scrutiny. Expectorants may be defined as agents which facilitate the removal of secretion from the air passages. To facilitate the removal of mucus it is necessary to stimulate coughing, increase the ciliary movements, lessen the viscosity of the secretion, or stimulate bronchial peristalsis. The

cilia are not supplied with nerves, and it is therefore impossible to stimulate them through the nervous system. It is highly improbable that any of the expectorants increase the ciliary movements. There is no evidence that any of the expectorants increase the rhythmical muscular contraction in the bronchioles. It is possible that apomorphin in large doses may stimulate the vagus and thus increase peristalsis. The final possibility is the action of expectorants in thinning the bronchial secretion. The viscosity of this secretion may be lessened either by increasing the amount of secretion or by introducing into the secretion something which would dissolve the mucus, as, for instance, an alkali. The expectorant action of ammonium chlorid and carbonate was thought to be due to their elimination through the bronchial mucosa, the alkali thinning the secretion. This theory, however, will not bear close scrutiny, and it is now believed that their action is upon the bronchial gland center, which, in its activity, apparently shows a parallelism with the salivary center. It is thought that the center may be stimulated either directly by substances in the blood, or reflexly from the stomach and mouth. Both experimental and clinical evidence would indicate that the iodides cause increased secretion of bronchial mucus. Many of the drugs having an emetic action also act as expectorants. The most important members of this group are apomorphin and ipecac. Both of these in non emetic doses are supposed to cause increased bronchial secretion. Apomorphin probably acts chiefly by direct stimulation of the bronchial gland center, ipecac both centrally and reflexly from the stomach. These drugs, pushed to the point where they have an emetic action, may possibly, through their vagus action, cause increased peristalsis of the smaller bronchioles. Senega, according to Henderson and Taylor, probably acts as an expectorant by effecting the bronchial gland center reflexly from the stomach. Pilocarpin stimulates the bronchial glands directly. His conclusions are, ammonium carbonate and ammonium chlorid and the emetic group of expectorants, as apomorphin and ipecac, when given in sufficiently large doses to animals, increase bronchial secretion. Ammonia salts, peros, in moderate doses equivalent to 2 mg, in an adult man, do not increase bronchial secretion in the dog. Apomorphin and emetin when given to dogs in doses considerably greater than the ordinary therapeutic dose for man, do not excite increased bronchial secretion.

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**Septicemia:** *The Therapeutic Gazette* for July treats editorially of vaccine and serum therapy in septicemia. The careful student of current literature concerning serum and bacteria therapy will be struck by the fact that periods of enthusiasm have been followed by those of skepticism and neglect; that many of the reports as to beneficial effects have been far from convincing; that the fundamentally sound sense of the medical profession still relegates the treatment in general to the class which may be regarded as promising but not yet proven; that the doctrine as to the inefficiency, nay the danger of the treatment during acute periods of infection, is generally accepted, with some notable exceptions; that as time goes on, the number who practice the treatment, and with a sufficient percentage of successes to encourage them in its continuance, is steadily increasing. Therefore Burnham's paper (*Annals of Surgery*, May 1914) is particularly timely, and of especial importance since it deals with one hundred and eleven consecutive cases of severe infection, in which either the course and symptoms were those of septicemia, or cultures showed the presence of bacteria in the circulating blood. A certain number followed abortions or labor, others infected wounds or abscesses, were associated with osteomyelites and arthritis, malignant endocarditis and finally a miscellaneous group. The final mortality was 74 or 66.6 per cent, but it should be remembered that these were hospital cases, which are the severe ones in which home treatment has failed. A large percentage of the cases of puerperal sepsis are due to the streptococcus. Hence it would seem wise to give antistreptococcic serum in every case



without waiting for the bacteriological diagnosis. Although it is unquestionably true that autogenous vaccines are the best, during the period of waiting for this, stock vaccines are advised. Burnham states that the results were especially favorable when the serum was given early, followed by autogenous vaccine. Burnham points out that septicemia with true bacteriemia, though a disease of exceedingly high mortality, especially in the type associated with malignant endocarditis, and in terminal infections, is in many cases amenable to treatment. Vaccines seem to benefit the majority of cases. Antistreptococcic serum is of great value, especially during the early stage, when its bactericidal powers are most pronounced, and if given in sufficient dosage during the period of invasion, will often change a systemic bacteriemia into a localized infection. The combination of antistreptococcic serum used in the early stage of septicemia, together with autogenous vaccines, used as soon as they can be prepared from blood cultures, seems to be particularly beneficial. If the blood cultures are sterile, vaccines may be prepared from the local lesion, although this method is unsatisfactory, and may lead to errors. Neither sera nor vaccines, although they usually do little harm, are free from danger, and the dosage and intervals need to be carefully worked out. The open air treatment seems to be the best method of increasing the resistance of the patient.

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**Thyroid Deficiency:** In the *Medical Record* for September 19, E. Hertoghe writes concerning thyroid deficiency. Myxedema is now a well known pathological entity, but he insists upon the mild forms, because they are not so well outlined, and very often escape the attention of the medical man. If we knew exactly the function of the thyroid gland, we would no doubt be able to deduce immediately the symptom of a diminished or impoverished secretion; but we do not. We may sum up and say, thyroid secretion is necessary to the building up and to the dismantling of our tissues—of all our tissues, and, therefore, the want of it finds an echo in all our organs without any exception. Thyroid weakness is not synonymous with cretinism. Incomplete forms will go very well with a fairly active and busy life, and some of these patients are very intelligent. In myxedema a most constant symptom is a lowering of the temperature. Dyspnea may be present and surpass all description, while in mild cases the oppression is less marked. It is a well recognized fact that thyroid deficiency falls in nine-tenths of the cases, on females. When the thyroid is normally active the menses are normal; when weak, menorrhagia sets in. The weaker the thyroid, the greater the loss of blood. We often see cases of menorrhagia in young girls, and do not know how to prevent the condition. If we can put aside such causes as fibroids and cancer, we will always think of thyroid deficiency. A few doses of thyroid extract will act as a powerful tonic, reduce the anemic influence of the menses, lessening the loss of blood. As to treatment, his theory of thyroid defect is based on the existence of an infiltration the amount of which varies with the degree of deficiency, but is always present. In adults a dose of five grains of thyroïdin equivalent to an English tabloid of thyroid extract is quite sufficient, and even this dose often provokes disagreeable symptoms in connection with the heart muscles and joints. Children tolerate thyroïdin better than adults. Alcohol and also tobacco should be prohibited, as they diminish the activity of the gland. Certain forms of mild thyroid defect derive benefit from the administration of small doses of arsenic, iodine, or bromine, as these substances form part of the thyroid secretion. Arsenic is of value in the forms associated with migraine, while a combination of iodine and bromine benefits the cases of incontinence of urine. He asserts that just as we search all our patients for tuberculosis, syphilis and alcoholism, a day will come when a systematic examination will also be made to ascertain their thyroid powers and defects. Innumerable possibilities may arise from the question of internal secretions.

**Heroin:** In the September number of the *Medical Council*, T. D. Crothers summarizes the dangers of heroin, and the treatment of its addiction. Heroin has been used formally as a sedative for coughs and mild neuroses, and has never attained any great prominence as an anodyne or narcotic, being classed among the inferior alkaloids of opium. Within the last few years its use has suddenly come into prominence as an addiction. When used by inhalation through the nose in the form of a powder the effects were so marked and pleasing that it was sought for and grew to be a very fascinating drug. Its effects differ somewhat from those of morphia, but the after-effects are not very pronounced in depressions or other disturbances; simply an exhilaration and quiet soothing effect and then a period of restlessness, and the desire to take up the drug again. When people addicted to its use come under medical care, for other difficulties, the heroin addiction is discovered, and the withdrawal precipitates a great variety of symptoms principally mental irritation and depression, sometimes to the point of delirium, and it dawns on the medical profession that this new addiction has attained to a very serious magnitude. In the treatment sulphate of magnesia in ten or fifteen grain doses three or four times a day, unless the bowels become very irritable, is probably the best drug. Humulus is another drug which can be given with great satisfaction in an infusion. Should it not act promptly, valerian is a safe sedative, particularly at night. Hydropathic measures in the form of baths every day are very essential. The rule should be to withdraw the heroin at once, and depend on valerian and sumbul or asafetida compound, and care should be taken to not give any form of opium or spirits. A heroin addiction is not a difficult thing to cure if the patient will follow the physician's directions implicitly. There is no danger in the sudden withdrawal of either cocain or heroin. Heroin is a dangerous drug to a neurotic, and if given to such should be concealed and withdrawn at the first opportunity or replaced by sumbul or the milder narcotics.

**Pertussis:** In the September number of *Merck's Archives* Edwin E. Graham (from the *Archives of Pediatrics*) states that the treatment of pertussis is one which has always absorbed a large degree of medical attention, and the mere enumeration of all the drugs, inhalations and cures which have from time to time been brought forward would consume quite an amount of space. He calls attention especially to quinin given intravenously and intramuscularly, adranalin, suggestion and vaccine treatment. All children with pertussis should be given an abundance of fresh air, and should be kept in bed if the temperature is one hundred degrees or higher. An acute laryngitis or rhinitis is not benefited by cold air; for such cases the air in the sick room must be kept fresh but not cold. Cold fresh air is of benefit in all other pertussis cases. All children with pertussis should be fed in small quantities and often, and the younger the child the more necessary it is to preserve its strength by proper attention to food and digestion. Local applications to the nasopharynx if made early—during the first two weeks—may be of decided value. At this period an application of a two per cent solution of silver nitrate solution to the nasopharynx may tend to prevent the spread of the infection to the deeper respiratory passages. Ochsenius recently reported 107 children so treated, with improvement in 84. He makes the application every second day, and claims a diminution of the number of paroxysms in eight days, with marked improvement in three or four weeks. Among the drugs used by inhalation are creosote and carbolic acid. Of the drugs useful *per se* belladonna is first mentioned. Antipyrin, sodium bromid and chloral trional, et cetera, are all useful. A combination of quinin, two parts, and veronal, one part, has proved of value. Adranalin is strongly advised by Fletcher and others, three minims of a 1/1,000 solution every four hours. He believes it advisable to use the combined vaccines in the treatment of severe cases. The final verdict of its efficiency can only be decided by additional evidence.



**The Pituitary:** Henri Claud and Rene Porak, in the October number of the *Monthly Cyclopaedia*, call attention to the hypotensor action of certain extracts of the pituitary. The cardiovascular action of the pituitary extracts are less constant than those of adrenal extracts, with which they have been compared. Certain observations tend to show that besides blood pressure-raising substances, rightly or wrongly assimilated to epinephrin, there may exist in pituitary extract substances that lower blood pressure. In general, glandular extracts consist of a complex mixture of substances intended for secretion and of organic products originating from the glandular tissue. The functional activity of a gland may therefore be marked through the toxic effect produced by the organic products, and this accounts for conflicting descriptions to which study of the glandular extracts has given rise. Organotherapy can henceforth progress only by giving up whole extracts of organs in favor of the products secreted by the organs. This end may be attained either by collecting the blood issuing from the internally secreting glands—a method quite generally difficult, and in particular as regards the hypophysis—or by resorting to chemical procedures having as their aim to isolate from the extracts certain products secreted by the glands. The distinctly hypotensor substances obtained from the pituitary in the attempt to isolate the active principles possess a few of the known actions of whole extracts of the organ. On the whole it seems clear that different pituitary preparations should be used with discrimination, according to indications. The substances studied by Houssay, and by Claude, Bandoïn and Porak, exhibit differences, in their effects on blood-pressure, from whole extracts of the posterior lobe of the hypophysis, while preserving most of the other properties of pituitary products. These differences are of import where certain definite therapeutic effects are sought for, or where the results of a rise in blood-pressure, as in hemoptysis among the tuberculous, and in visceral hemorrhages (which have appeared favorably influenced by pituitary injections), are regarded with apprehension.

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**Public School Courses for Adults in Health Preservation.**—"The popular conception of what constitutes education," says *The Journal of the American Medical Association* editorially in its issue for October 3, "is growing and our ideas as to the usefulness and effectiveness of our public school system are continually broadening. The latest idea comes from Rochester, New York, where the Board of Education, in response to a petition signed by three thousand citizens of Rochester, has instituted in the public schools a course of instruction for adults, to be given outside of school hours, by which one may learn, in the language of the announcement, what diseases are preventable, how the body can be made better able to resist disease, how to nurse scientifically when home nursing is necessary, how to observe and report symptoms to the doctor, what to do in emergencies and (quite as important) when to do nothing until the doctor arrives, what food is proper for the sick and how to prepare it, how to care for children and how to make the aged comfortable. This course, instituted in an experimental fashion last winter, is to be repeated during the coming year. The motto adopted by those in charge might well be made the battle cry of the entire educational movement for better public-health conditions: 'Applied knowledge is the only known way for preventing and curing sickness.' The announcement states that the ultimate object is to obtain for everyone the longest possible period of the greatest possible usefulness and enjoyment. 'Live a Little Longer'—the title of the leaflet containing the announcement—is simply a graphic and epigrammatic way of emphasizing the same idea. The recognition by the Rochester Board of Education that it has a duty and responsibility, not only to schoolchildren, but also to the entire community, and that the most important subject it can teach is how to keep well, sets a new and high standard for other boards of education."

## NEW AND NONOFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies, 1914, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Hypodermic Tablets of Emetine Hydrochloride, Mulford.—Each tablet contains emetine hydrochloride, 0.016 gm. H. K. Mulford Co., Philadelphia (*Jour. A. M. A.*, Oct. 3, 1914, p. 1204).

Acne Vaccine.—Marketed in boxes of 4 syringes containing 25, 50, 100 and 200 million killed bacilli. Also in boxes of 2 syringes containing 50 and 200 million killed bacilli; boxes of 6 ampoules containing 10, 25, 50, 100, 200 and 500 million killed bacilli, with a syringe; and boxes of 2 ampoules containing 50 and 200 million killed bacilli, with a syringe. E. R. Squibb & Sons, New York.

/Bacillus Coli Communis Vaccine.—Marketed in boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed bacilli. Also boxes of 2 syringes containing 100 and 500 million killed bacilli and boxes of 2 ampoules containing 100 and 500 million killed bacilli, with a syringe. E. R. Squibb & Sons, New York.

Bacillus Pertussis Vaccine.—Marketed in boxes of 4 syringes containing 25, 50, 100 and 200 million killed bacilli. Also boxes of 2 syringes containing 50 and 200 million killed bacilli; boxes of 6 ampoules containing 25, 50, 100, 200, 300 and 500 million killed bacilli, with a syringe; and boxes of 2 ampoules containing 50 and 200 million killed bacilli, with a syringe. E. R. Squibb & Sons, New York.

Pyocyaneus Vaccine.—Marketed in boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed bacilli. Also in boxes of 2 syringes containing 100 and 500 million killed bacilli. E. R. Squibb & Sons, New York.

Gonococcus Vaccine.—Marketed in boxes of 4 syringes containing 100, 200 and 500 million killed gonococci. Also in boxes of 2 syringes containing 100 and 500 million killed gonococci; boxes of 6 ampoules containing 50, 100, 150, 350, 500 and 1,000 million killed gonococci, with a syringe; and boxes of 2 ampoules containing 100 and 500 million killed gonococci, with a syringe. E. R. Squibb & Sons, New York (*Jour. A. M. A.*, Oct. 3, 1914, p. 1204).

Meningococcus Vaccine, Immunizing.—Marketed in boxes of 3 syringes containing 100, 500 and 1,000 killed meningococci. E. R. Squibb & Sons, New York.

Meningococcus Vaccine, Curative.—Marketed in boxes of 4 syringes containing 100, 200, 400 and 500 million killed meningococci. Also in boxes of 2 syringes containing 100 and 500 million killed meningococci; boxes of 6 ampoules containing 100, 100, 500, 500, 1,000 and 1,000 million killed meningococci with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed meningococci, with a syringe. E. R. Squibb & Sons, New York.

Pneumococcus Vaccine.—Marketed in boxes of 4 syringes containing respectively 100, 200, 400 and 500 million killed pneumococci; boxes of 2 syringes containing respectively 100 and 500 million killed pneumococci; boxes of 6 ampoules containing 100, 100, 500, 500, 1,000 and 1,000 million killed pneumococci, with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed pneumococci, with a syringe. E. R. Squibb & Sons, New York.

Staphylo-Acne Vaccine.—Marketed in boxes of 4 syringes containing 100 million killed staphylococci and 25 million killed acne bacilli, 200 million killed staphylococci and 50 million killed acne bacilli, 400 million killed staphylococci and 100 million killed acne bacilli, and 500 million killed staphylococci and 200 million killed acne bacilli; boxes of 2 syringes containing 100 million killed staphylococci and 50 million killed acne bacilli and 500 million killed staphylococci and 200 million killed acne bacilli; boxes of 2 ampoules containing 100 million killed staphylococci



and 50 million killed acne bacilli and 500 million killed staphylococci and 200 million killed acne bacilli, with a syringe. E. R. Squibb & Sons, New York.

**Staphylococcus Vaccine.**—Marketed in boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed staphylococci; also in boxes of 2 syringes containing 100 and 500 million killed staphylococci; boxes of 6 ampoules containing 100, 250, 500, 500, 1,000 and 2,000 million killed staphylococci, with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed staphylococci, with a syringe. E. R. Squibb & Sons, New York.

**Streptococcus Vaccine.**—Marketed in boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed streptococci; also in boxes of 2 syringes containing 100 and 500 million killed streptococci; boxes of 2 ampoules containing 100 and 500 million killed streptococci, with a syringe. E. R. Squibb & Sons, New York.

**Typhoid Vaccine, Curative.**—Marketed in boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed bacilli. Also in boxes of 2 syringes containing 100 and 500 million killed bacilli; boxes of 6 ampoules containing 100, 100, 500, 500 1,000 and 1,000 million killed bacilli, with a syringes containing 100 and 500 million killed bacilli; boxes of 6 ampoules bacilli, with a syringe. E. R. Squibb & Sons, New York.

**Typhoid Vaccine, Immunizing.**—Marketed in boxes of 3 syringes containing 500, 1,000 and 1,000 million killed bacilli. E. R. Squibb & Sons, New York.

**Small-pox (Variola) Vaccine (Glycerinated).**—Each dose in separate aseptic sealed glass tube, with bulb and needles. Boxes of 5 and boxes of 10 tubes. E. R. Squibb & Sons, New York.

**Diphtheria Antitoxin.**—Curative doses, marketed in syringes containing 2,000, 3,000, 4,000, 5,000, 7,500 and 10,000 units. E. R. Squibb & Sons, New York.

**Antidysenteric Serum.**—Marketed in vials containing 50 Cc. H. K. Mulford Co., Philadelphia, Pa.

**Antipneumococcic Serum, Polyvalent.**—Marketed in syringes containing 20Cc. Also marketed in vials containing 50Cc. H. K. Mulford Co., Philadelphia, Pa.

**Antistreptococcic Serum, Polyvalent.**—Marketed in vials containing 50 Cc. H. K. Mulford Co., Philadelphia, Pa.

**Antistreptococcic Serum, Scarlatinal, Polyvalent.**—Marketed in vials containing 50 Cc. H. K. Mulford Co., Philadelphia, Pa.

**Typho-Serobacterin, Mulford, Immunizing.**—Each package contains 3 syringes of Typho-Serobacterin graduated as follows: First dose, 1,000 million killed sensitized typhoid bacilli; second dose, 2,000 million killed sensitized typhoid bacilli; third dose, 2,000 million killed sensitized typhoid bacilli. H. K. Mulford Co., Philadelphia, Pa. (*Jour. A. M. A.*, Oct. 10, 1914, page 1296).

**Cymarín.**—A neutral, non-glucosidal substance obtained from *Apocynum cannabinum* and *Apocynum androsemfolium*. Cymarín resembles amorphous strophanthín in its actions and is about equal to it in activity. It is more active when injected intravenously or intramuscularly than when given orally. Its uses are much like those of digitalis, but it is best suited in the form of Cymarín Tablets, 1-200 Gr. and Ampoules Cymarín Solution containing 1-60 Gr. cymarín. The Bayer Co., New York. (*Jour. A. M. A.*, Oct. 17, 1914, page 1393.)

**Maltine Malt Soup Extract.**—Maltine containing potassium carbonate, 1.1 Gm. to each 100 Gm., and alcohol, 3.88 per cent. Maltine Co., Brooklyn, N. Y. (*Jour. A. M. A.*, Oct. 24, 1914, page 1479.)

**Acne Vaccine.**—Marketed in packages of 6 syringes, each containing 12 million bacteria. Greeley Laboratories, Inc., Boston.

**Acne Vaccine.**—Marketed in packages of 4 syringes containing, respectively, 5, 10, 20 and 40 million killed acne bacilli. Schieffelin & Co., New York.

**Colon Vaccine.**—Marketed in packages of 6 syringes, each containing 1,000 million bacteria. Greeley Laboratories, Inc., Boston.

**Colon Vaccine.**—Marketed in packages of 2 vials, each containing, respectively, 50, 100, 200 and 400 million killed bacteria. Schieffelin & Co., New York.

**Pyocyaneus Vaccine.**—Marketed in packages of 6 syringes, each containing 1,000 million bacteria. Greeley Laboratories, Inc., Boston.

**Pyocyano-Bacterin.**—Marketed in packages of 4 syringes containing, respectively, 50, 100, 200 and 400 million killed bacteria. M. K. Mulford Co., Philadelphia, Pa. (*Jour. A. M. A.*, Oct. 24, 1914, page 1479.)

**Antimeningococcus Serum (Antimeningitis Serum).**—Marketed in 1 aseptic glass cylinder containing 30 Cc., with special sterile needle and stylet. Also in one 20 Cc. vial. Schieffelin & Co., New York.

**Gonococcus Vaccine.**—Marketed in packages of 6 syringes, each containing 500 million bacteria. Greeley Laboratories, Inc., Boston.

**Gonococcus Vaccine, Polyvalent.**—Marketed in separate syringe packages containing, respectively, 50, 100, 200, 400 and 1,000 million killed bacteria. Schieffelin & Co., New York.

**Pneumococcus Vaccine.**—Marketed in packages of 6 syringes, each containing 50 million bacteria. Greeley Laboratories, Inc., Boston.

**Staphylococcus Albus Vaccine.**—Marketed in packages of 6 syringes, each containing 1,000 million bacteria. Greeley Laboratories, Inc., Boston.

**Staphylococcus Aureus Vaccine.**—Marketed in packages of 6 syringes, each containing 1,000 million bacteria. Greeley Laboratories, Inc., Boston.

**Strepto-Bacterin (Human) Polyvalent.**—Marketed in packages of 6 ampoules, each containing 100 million killed bacteria; also in packages of 6 ampoules, each containing 200 million killed bacteria. The Abbott Alkaloidal Co., Chicago.

**Streptococcus Vaccine.**—Marketed in packages of 6 syringes each containing 500 million bacteria. Greeley Laboratories, Inc., Boston.

**Scarlet Fever Treatment.**—Marketed in packages of 4 vials containing, respectively, 50, 100, 200 and 400 million killed bacteria.

**Typhoid Bacillus Vaccine.**—Marketed in packages of 6 syringes, each containing 1,000 million bacteria; also in packages of 6 syringes containing, respectively, 100, 200, 400, 600, 800 and 1,000 million bacteria. Greeley Laboratories, Inc., Boston. (*Jour. A. M. A.*, Oct. 31, 1914, page 1577.)

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**Incomes of College Graduates Ten and Fifteen Years After Graduation.**—*Science* for February 4, 1910, printed a statement of the incomes of sixty-seven of the hundred men in the Dartmouth class of '99 the tenth year out of college. At the quinquennial reunion last June the net incomes of fifty-six of the ninety-five now living were recorded. Practically all of the fifty-six were included in the group five years ago. Those from whom the facts were not secured undoubtedly would lower the average for the class somewhat, but the two groups are directly comparable. The figures five years ago were used editorially in at least one metropolitan paper to prove the wasted expense of a college education when the earning capacity ten years after graduation was so small. The present figure shows that there is a very rapid rise in this capacity after ten years. Five years ago there were nineteen men getting fifteen hundred or less, this year only four. Then only seventeen per cent. had more than three thousand dollars and last year a little over fifty per cent. were in this class. Five years ago the highest man had seven thousand dollars and this time the highest was twelve thousand with two tens. Five years ago the average was \$2,097 and this time \$3,729, with the men at present much more closely massed about the average.—*Science*, Oct. 2, 1914.



## The Academy of Medicine of Cleveland

### CLINICAL AND PATHOLOGICAL SECTION

The one hundred and fourth regular meeting of this Section was held Friday, November 6, 1914, at City Hospital, the Chairman, A. W. Lueke, in the chair.

The following program was presented:

#### 1. Presentation of Three Cases of Tracheotomy, by W. H. Tuckerman.

In all the cases, the patients being children, it was found to be impossible to have the intubation tube retained for a long time. Accordingly tracheotomies were performed in all of the cases. The larynx was not interfered with afterward in any of the cases, and the wounds were allowed, ultimately, to heal. In the first patient presented the tube was corked and the patient breathed normally through the natural respiratory passages. The tube was still allowed to remain in this case, however, since conditions did not yet justify its removal.

The second patient presented, breathed only through the tube. The third patient, when the inner tube was removed, became markedly dyspneic. By gradually corking the tube in such cases normal respiration through the larynx is gradually re-established again. One of the benefits of the method used, as compared to other methods, is that there are no detrimental after effects on the voice.

The fourth patient shown, was a child which at two years of age had had its nose broken in, with the result that it cannot breath through it. As a result the chest has become markedly scaphoid. The child presented no evidence of rickets. Removal of the adenoids was followed by no benefit. The question of doing a submucous resection at this age is one on which different opinions are held. Some operators prefer to wait until the child is older.

#### 2. Presentation of Surgical Cases, by C. A. Hamann.

(a) Plastic Operation of Elbow, Following Infectious Arthritis with Ankylosis.

The patient, a young girl, contracted an infectious arthritis, following trauma to the elbow joint. The process resulted in complete bony ankylosis of the joint. The operation of choice in the case was that of arthroplasty. An incision was made over the olecranon process, the bony ankylosis was severed, the ends of the bones were rounded off and considerable parts of the bony ankylosis removed. The lower end of the humerus was covered over with two strips of fascia, one outer and one inner. Between the upper end of the radius and the lower end of the humerus muscle the fascia were inserted. The idea of the operation was that the strips of fascia in apposition would develop into a synovial membrane. It is a well known fact that where connective tissue is subjected to constant friction a synovial membrane forms.

Prior to the operation, the movements which the joint was capable of executing, were practically nil. At the time the case was presented, the patient was able to pronate and supinate the arm well, and was also able to secure a slight amount of flexion and extension. It is probable that with continued exercise the motions at the joint will further improve.

The elbow joint is the favorite site for performing of the operation of arthroplasty. The end results obtained as a result of the operation are better than can be secured at any other joint in the body.

#### (b) Presentation of a Case of Multiple Tumors.

The patient presented showed tumors at various situations, on the cheek, at the clavicle, on the inner arm. Percussion elicited marked dull-

ness over the gladiolus and manubrium. One of the chief symptoms of which the patient complained was difficult swallowing. The mediastinal tumor, probably present in this case, extended from the eighth vertebra to the diaphragm.

These tumors are of the nature of epitheliomas. Clinically they are sarcomas. The tumor on the cheek shows no glandular involvement, thus the evidence is against the growths being carcinomas. The mediastinal tumor in this case is the largest. Multiple tumors occur occasionally in cases of leukemia.

(c) Presentation of a Case of Traumatic Parotitis.

The opening of the abscess, in the case presented, occurred spontaneously, into the external auditory canal. The parotitis in this case was of traumatic origin, apparently. The speaker declared that he had seen six cases of parotitis, in which the opening occurred into the external auditory canal, bursting into it through the Incisura Santorini.

J. E. Tuckerman, asked in discussion, whether a second operation would be justified in the case of the ankylosed elbow joint presented.

C. A. Hamann, in rebuttal, said that no further benefits could be hoped for from further operation. Further improvement, however, can be hoped for from the last operation.

**3. Presentation of a Case of Aneurism of the Ascending, Transverse and Abdominal Aorta, by Richard Dexter.**

The patient in question entered City Hospital on September 14, last, complaining of rheumatism of the leg. His past history revealed that he had had gonorrhea thirty years ago. There was also a suggestive history of lues, although this last was indefinite.

The patient's present illness began four days before his entrance into the hospital. His right leg had become very painful and swollen. He evidently had a periostitis with some infection. The patient entered the hospital on the surgical service but was afterward transferred to the medical.

Examination on the medical service showed pulsations over the carotids and a marked tracheal tug. Over the sternum there was a systolic impulse and diastolic impact obtainable. There was marked dullness to percussion, both to the right and the left of the sternum. The heart sounds were of good quality. A systolic murmur was audible at the apex, and also at the aortic area, and was transmitted upward. The aortic second sound was sharp, ringing and accentuated. The radial pulses were normal. There were marked epigastric pulsation, which on careful examination was found to be expansile in type. On percussion there was dullness over the epigastrium. A systolic murmur was also audible at the ensiform and was carried toward the umbilicus.

An X-ray of the man's chest showed a broadening over the aortic region, and as it was followed down there was seen to be a distinct increase in density. The plate showed distinctively the line of the aorta, behind the heart, to the left.

The laboratory findings consisted of triple positive Wassermann reactions on two specimens of the man's blood. The reaction from his spinal fluid was negative, however.

The diagnosis in the case was luetic involvement of the aorta. The tracheal tug, dilation and dullness showed certain involvement of the ascending and transverse aorta, and the X-ray showed probably dilation of the abdominal aorta. Luetic aortitis, extending from the transverse arch down through the descending aorta, represents a condition not commonly met with. An interesting point is that the patient came into the hospital complaining of rheumatism, which was probably a syphilitic periostitis, but has had no cardiac symptoms at any time. The explanation is difficult. It may be that the process has never involved either the aortic or coronary valves or the myocardium.



#### 4. Presentation of Three Neurological Cases, by C. W. Stone.

The first case shown was a man, aged thirty-six, complaining of general weakness. His past history was not illuminating. The patient until two years ago was in good health. At that time he began to notice weakness, first in his arms, then in his legs. Four years ago he leaned against a radiator. He was aware of no pain, but later found the skin over the deltoid region extensively blistered. Later, two years ago, while the patient was being examined in a hospital, an electric light bulb was left in contact with his skin for a little while. He was again aware of no pain, but his skin was extensively blistered. The same phenomena were also observed in several other instances.

One of the most characteristic points about the patient was his gait, which was difficult and of the spastic type. His head has assumed an anterior position. There was marked atrophy about the shoulder girdle. Some tendency to fibrillary contractions was also noticed in the muscles composing part of the shoulder girdle. The reflexes were active in both extremities, being distinctly increased in the legs and the ankle clonus and Babinski signs were also present in both legs.

Below the shoulders, anterior and posterior, there was diminution in the pain and temperature senses. The touch sensation was practically normal. The diminution of pain and temperature sense was also noticeable in the legs, but not to such a marked degree as higher up.

In other words, the patient presented all of the characteristic symptoms of syringomyelia, namely, preservation of the touch sense, with diminution in the pain and temperature sense, atrophy of certain muscle groups, and some spasticity in the lower extremities.

Syringomyelia, post-mortem, shows a gliomatous tumor in the cord, or if examined at a later stage, a cyst formation. Serous fluid contained in the cysts is derived from the broken down neuroglia tissue. The symptoms are naturally referable to the part of the cord affected. In this case we can say that the cervical and upper thoracic segments of the cord are affected.

The second case presented occurred in a man, aged fifty-one. Four years ago he first noticed diminution in the power of his left arm. Later his left leg became affected, then his right arm. The patient's gait was shuffling, and there was a definite increase in the tonicity of the lower extremities. Here also, the patient shows definite loss of substance in his shoulder girdle, especially on the left. The deltoid has been thrown out of function and the latissimus dorsi is small. The legs show increased reflexes, especially the left, with ankle clonus. The Babinski and Oppenheim-Gordon signs are also demonstrable.

Eliminating from consideration any sensory disturbances which the patient may have, the case is one of anterior poliomyelitis, with a lateral sclerosis. The patient shows definite sensory disturbances, however. The left side of the body is definitely less sensitive to pain, touch, temperature and vibratory sense, than the right. Also from the fifth dorsal segment up, running over the shoulders and trunk, there is definite diminution in the pain and temperature sense. If these disturbances are valid, then this may be a case of syringomyelia.

The third case shown was a man, aged fifty-seven, whose present illness began seven years ago. At that time, according to his statement, he had muscular rheumatism in his legs. He did not suffer from any marked pain in his legs, but he noticed at that time that they became stiff. At present the upper part of the body is perfectly normal, but the legs are rigid, capable of only slow motion, show active reflexes and ankle clonus. This is evidently a disease of the pyramidal tracts. The patient shows no sensory disturbances, whatsoever. The patient in this case has had merely the motor side of his spinal cord affected. This case is primarily one of lateral sclerosis.

E. O. Houck, in discussion, asked the speaker what the blood pressure of the patient in question was.

Richard Dexter, in reply, stated that the blood pressure of the patient was not increased.

In all of the three cases presented, the laboratory findings, covering all points that might be of interest in connection with the diseases, were negative.

#### **5. Presentation of Two Cases of Eclampsia, by W. T. Miller, Jr.**

The first patient shown went to bed the night before she was brought into the hospital, complaining of slight headache, edema of the feet and head, and marked epigastric pains. Her condition did not seem alarming to the family, because all of the symptoms had been present before. At two o'clock the next morning, she was in convulsions. The patient had five of these before she was brought to the hospital. Spinal puncture was done, the fluid first secured being clear and under pressure. Later it came out blood tinged. This fact must point to a cerebral hemorrhage. The blood pressure, systolic, was 170 mm. The retinal vessels were engorged, and the disc of the optic nerve showed marked edema.

The question of procedure in such cases is, whether conservative or radical treatment shall be favored. Even the advocates of conservative treatment admit that the sooner the baby is removed, the better. The patient in the above case was a multipara. Her cervix was undilated. To dilate the cervix conservatively would take 6 or 7 hours. This added strain would be too much for a patient with symptoms such as have been described. Radical manual dilatation carries a great amount of shock with it. Vaginal Caesarean section, so-called, has been resorted to in such cases. It is more difficult than the true Caesarean section, such as was performed on the patient under discussion. There were no adhesions of the uterus to the abdominal scar following the operation. The uterus contracted down well, without difficulty.

The second case differed from the first case shown, in that on admission to the hospital she showed only a slight edema of the feet and complained only of not feeling up to standard. Examination of her urine showed solid albumin, by the acetic acid test. The foetus, at this time, was in its sixth month. The woman developed convulsions, had eight in one hour and a half. She was a primipara. Should she be delivered by radical treatment, so-called, or treated by the conservative method? The latter would be even slower in her case than in that of the multipara. Abdominal section is more rapid and safer than dilatation from below or vaginal Caesarean section. In this case the low incision was used. The spinal puncture was also performed in this case and fluid was obtained under pressure. The blood pressure, systolic, was between 160 and 170. There were no eye signs.

Both patients, after operation, were given croton oil and placed in hot packs. The first responded well, the secretion of urine and sweat being much increased. The second did not respond. She was bled, about 12 ounces of blood removed, after which she was again placed in the hot pack and responded well. After the bleeding, and prior to replacing her in the hot pack, normal saline solution was injected.

In cases such as the above the condition of the patient prior to operation is important, also the presence of cerebral hemorrhage.

W. H. Humiston, in discussion, asked how the babies in the cases described had gotten along?

W. T. Miller, in answer, said that the baby in the first case, which was eight months old when born, had lived and gotten along nicely. The baby in the second case, which was six months old when born, had died twenty-four hours after delivery.

The speaker said that results in both of the cases had been excellent. The trauma and lacerations which resulted from conservative treatment



offer striking comparison to the results from the so-called radical treatment. The indications for Caesarean section have been greatly widened recently. High forceps should be banished from the list of available operations. The skill required for the successful application of high forceps is only attained by a very few. It is one of the most dangerous of all operations.

History of the Caesarean section operation shows that in clean cases the mortality is practically nil. The mortality in cases, other than these, is not high. Saving the life of the child is nearly as important as saving the life of the mother.

E. O. Houck, in discussion, said that one should not be too enthusiastic for Caesarean section despite the results achieved in the two cases presented. Many patients will die in spite of Caesarean section. The question at issue in such cases is not so much that of immediate delivery as care not to do harm or inflict trauma, by whatever method may be used.

K. E. Ochs, in discussion, asked what anaesthetic had been used in the cases shown?

W. T. Miller, in answer, said that ether was the anaesthetic of choice in such cases. The speaker said that the cases shown were of the type that should be treated as they were treated. However, all cases do not fall in the same class. Conditions also often offer obstacles to using the treatment of choice.

#### **6. Presentation of a Case of Jaundice, by F. C. Herrick.**

The patient presented entered the hospital 33 days before, and he had first become jaundiced a week prior to that time. During a period of twenty years he had been a confirmed alcoholic, but for the past ten years he has been a total abstainer. His liver was large, hard and the edge was round. The coagulation time of his blood was 8 minutes. His hemoglobin was 60 and his red counts 2,700,000. The patient's jaundice reached its maximum two days after it began. The patient had no pain of any sort in connection with it.

We find that such cases, ruling out cirrhosis and catarrh, are usually caused by malignant disease of the gall ducts, especially in a man beyond middle life. The patient's jaundice deepened after it began, and the degree of jaundice presented in the case was thought to be too deep for that occurring in a case of cirrhosis. Operation was performed, with the end in view, either to remove the malignant growth, if such were found, and if removal would be feasible, or to anastomose the gall bladder and duodenum.

Upon going in much fluid was found in the abdominal cavity. No carcinomatous growth was demonstrable. The gall bladder was large, about the size of a Bartlett pear. Its walls were thick, about one-quarter inch, and on palpation it felt like an edematous scrotum. The gall bladder was anastomosed to the duodenum. The jaundice disappeared immediately after operation. The patient now shows a hemoglobin of 80.

The coagulation time of the patient's blood on admission was 8 minutes. Horse serum was administered until the coagulation time fell to 3 minutes. At the operation there was scarcely any hemorrhage. If anything, the patient's blood clotted more promptly than usual. After operation, coagulation time again dropped to  $4\frac{1}{2}$  minutes and later it gradually reached 7 minutes. Horse serum was again given the patient. The coagulation time dropped to 5 minutes. At present it is up to normal.

The condition which the case presented was probably a catarrhal jaundice in the course of a cirrhosis. Why did the jaundice clear up after the gall bladder and duodenum had been anastomosed? This was due, probably, to the incision made into the gall bladder, whereby the serum was allowed to drain out of its walls. The entire biliary tract was markedly edematous. The question is, whether the above treatment could not be used to advantage in all cirrhotic cases.

J. E. Tuckerman, in opening the discussion, asked why the gall bladder had been anastomosed to the duodenum, instead of draining it to the outside?

F. C. Herrick, in rebuttal, said that he had anastomosed the gall bladder and duodenum because it was his routine procedure to do so in malignant cases. He explained the fall in the patient's hemoglobin on the basis of the cholemia present, together with the destruction of R. B. Cs.

#### **7. Presentation of Dermatological Cases, by H. N. Cole.**

##### **(a) A Case of Secondary Syphilis.**

The patient, a woman, has been afflicted with ethylism for the past month. She had a general secondary eruption at that time, but nothing was done for it on account of her ethylism. The patient complained of headache, rheumatism, malaise, and she was carrying some temperature.

The patient showed a general maculo-papular eruption, with rupia. Such cases are very common. The patient's throat was injected and she showed some glandular enlargement.

**(b)** The second case presented was a baby, three years old. For the past seven weeks the child has had a sore on its lips. Eight weeks before that time, the child cut its lip on a tin can. The sore then developed and refused to disappear. When the patient came under observation he also had a general eruption with some glandular enlargement.

Chancres occur far too often in the innocent. Proper prophylaxis will do much to decrease the number of cases. The baby presented, contracted the disease from its father, from his caresses, at the time it had the open wound on its lip.

When cases of syphilis in the dangerous stages come to Lakeside dispensary, they are sent to City Hospital, where beds are available for them. They are kept there three weeks, during which time under salvarsan and mercury the lesions on their skin and mucus membranes disappear. During this period they are given three doses of salvarsan and daily injections of biniodid. After this they are referred back to Lakeside dispensary, when injections of the insoluble salts of mercury is begun. Physicians, especially, suffer from innocent inoculation, a large per cent of the total number of chancres occurring on fingers being found in medical men.

N. Rosewater asked what treatment was given children in such cases?

H. N. Cole, in answer, said that they were given two grains of gray powder after each meal. Injections in the case of children are not indicated. Salvarsan can be administered intra-muscularly, or intra-venously into the veins of the head. Intra-muscular injections in these cases are very good.

#### **8. Presentation of a Case of Ruptured Pampiniform Plexus, by B. F. Lowry.**

The patient in this case came into the hospital October 24. Three days prior to that time, he declared that he felt something break and a mass appeared in his scrotum. This was first thought to be a strangulated hernia, later an extravasation of urine. The penis was black, edematous and swollen. Sounds could be made to enter readily, however. There was no skin reaction.

An incision was made through the internal oblique muscle, and a pint of blood gushed out. The case was evidently one of ruptured pampiniform plexus, as suggested by Doctor Herrick.

F. C. Herrick, in discussion, said that the suggestion of the diagnosis of the case came to him from a similar case which he had seen in London, seven years ago. The patient, a boy, had been hit in the scrotum by the knee of one of his playfellows.

#### **9. Presentation of a Dermatological Case for Diagnosis, by H. L. Basinger.**

The patient was a schoolboy, aged eight years, suffering from an enlarged nose, sore cheek and upper lip. His family history was negative.



His past history showed only that he had had an attack of diphtheria, and had suffered extensively, at one time, with corneal ulcers. Two years ago the patient fell down stairs and injured his nose. It became swollen and painful, but the application of hot compresses caused complete resolution. Two months later the patient's nose again became swollen, red and hard, and the patient had some temperature. A physician diagnosed the condition as erysipelas, which soon cleared up. The attacks recurred, in this manner, and the nose began to get progressively larger. The last attack occurred in March, at which time the patient's temperature was 104.

The patient's white count was 10,000, of which number 77 per cent were polymorphonuclears. Both the Wassermann and Von Pierky reactions were negative. Cultures from the nodules showed staphylococci, streptococci, and another bacillus. Section taken from the cheek shows a marked infiltration of round cells and plasma cells. The same bacilli as appeared in the culture were also found. The bacillus was a diphtheroid form, Gram positive.

J. K. Hewitt said that the section taken from the cheek resembled granulomatous tissue, possibly tuberculous, but no trace could be found of the tubercle organism.

C. A. Hamann, in opening the discussion, said that he had showed the patient previously, as a case of lymph stasis with elephantiasis, following repeated attacks of erysipelas.

H. N. Cole confirmed the diagnosis previously made by C. A. Hamann.

C. F. Hoover asked what interpretation had been placed upon the keratitis. Might this not be luetic?

C. A. Hamann, in reply to C. F. Hoover's question, declared that the keratitis was undoubtedly of the phlyctenular type. There was no evidence of the ground glass cornea of an interstitial keratitis. The process was evidently not luetic.

#### **10. Presentation of a Case of *Saccharomyces* of the Lung, by S. A. Cleaveland.**

The patient, a man, was supposed to have typhoid fever at the time of admission to the hospital. Later he was thought to have tuberculosis. He was 39 years old, a butcher by trade. Patient gave a history of tendency to taking cold readily and of pains in back, abdomen and legs. His temperature on admission was 102.2. The mouth was dry and foul. The fauces were reddened. There was a general glandular enlargement. Rales were heard in both apices. His white blood count was 5200. His hemoglobin was 50. Albumin was found in the urine. The man's fingers showed unusually well-marked clubbing, but, as this was present also in his father and brothers, it was discarded as of no significance.

The case was treated as a case of typhoid fever. The patient's temperature came to normal in 18 days. During this time he was acutely ill and delirious. He lost weight and his stools were bloody. Widal's and blood cultures were negative. His hemoglobin at this time varied between 65 and 70. His temperature was irregular and slightly abnormal.

The sputum was examined repeatedly for tubercle bacilli, but the tests were, without exception, negative. The Von Pierky test was negative. Tuberculin injections gave negative results. Then the possibility of a yeast infection was considered. Cultures were made from the sputum and the yeast organisms were found and isolated. They were also obtainable directly from the sputum. The skin showed a slight reaction with the yeast organism, when the test was performed.

Following the exclusion of the possibilities that the patient was suffering with typhoid or tuberculosis, it seems reasonable that what the patient had was a yeast infection. The organism resembles that of beer yeast and slightly resembles the organism of thrush. The organisms are about the size of red blood cells and are capsulated. They grow on broth and blood serum. The colonies are round, raised and soft. The organism stains readily.

E. P. Carter, in opening the discussion, emphasized the fact that the patient presented the symptoms of typhoid with absence of the Widal reaction and with negative blood cultures. The presence of clubbed fingers, together with other signs, spoke for tuberculosis. Even after the isolation of the yeast organism it is hard to reconcile the evident pathogenic progress with the clinical symptoms.

J. H. Hewitt, in discussion, said that the present case was the third of its kind with which he had come in contact. The patients came into the hospital with the diagnosis of tuberculosis, complaining of a great deal of cough and profuse expectoration. All attempts to stain for tubercle bacilli, however, were unsuccessful.

The sputum in these cases is thin, with white granules. By pressing these out on slides, the yeast bodies can be readily seen. They grow well on media, the colonies being porcelain white and smooth. The speaker said that he had been able to isolate four strains of the organism. The organism is of wide distribution, being found in routine diphtheria cultures, in tuberculous sputum and in purulent exudates. All cases infected with the organism recover. The relation of the organism to the condition in the lung is, as yet, unproven.

S. S. Berger said that he had had some experience with actinomycetes. These cases resembled chronic tuberculosis. The treatment of large abscesses with potassium iodid is unreliable. Surgical treatment is the best.

#### 11. Demonstration of Pathological Specimens, by J. H. Hewitt.

The speaker described a method of sealing pathological specimens between glass plates for purposes of demonstration. After years of experimentation he succeeded in finding a perfect method of sealing. Laboratory gelatin is the ideal media. However, this is proteid, and is in danger of being digested by the tissues. To remove this capacity of digestion from the tissues requires a very high heat and is likely to damage them. He now uses agar-agar, such as is used in the laboratory, and finds it very satisfactory.

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## OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The seventy-fourth regular meeting of the section was held at the Medical Library on Friday evening, October 23d, at 8 P. M.

W. C. Tuckerman presented a case of old trachoma with trichiasis of many years standing. Lately developed a growth at the limbus. Pathological findings showed karyokinetic figures. Is being treated with X-rays and shows some improvement.

L. Wolfenstein presented a case of Atypical fundus. Patient claims failing vision for a couple of months. Vision: right eye fingers at three meters; left eye light perception. Right eye shows a neuroretinitis; edges of disc hazy. Exudate in retina partially hiding some of the vessels. Left eye atypical fundus; no definite disc can be made out. In region where disc might be expected, there are about a dozen irregular-shaped gray spots, from which there are several white streamers running up and down about where one might expect the larger blood-vessels to be, and giving the appearance of medullated nerve fibers. The vessels are all small and atypical. The outlines of all structures are sharp and there is apparently no active pathological process.

Members of the section were inclined to believe that the condition of the left eye is a congenital anomaly, and that the eye never had any better vision. The poor vision was discovered accidentally by patient on account of failing vision of right eye. The cause of neuroretinitis of the left eye has not been determined. Physical examination, urine and Wassermann all negative.



## PROGRAM

**1. Demonstration of Apparatus for Killian Suspension Laryngoscopy, by Wm. B. Chamberlin.**

Chamberlin had his apparatus set up and gave a demonstration of the manner in which it is used, showing its advantages in applying the bronchoscope.

Metzenbaum in this connection presented a direct laryngoscope of Struycken.

**2. Presentation of Osteoma of Frontal Sinus, by J. M. Ingersoll.**

Six months before operation, patient, a boy, was struck over left eye with a baseball. Boy was knocked unconscious, but was soon revived; contusion cleared promptly; moderate pain. Three months later, diplopia left eye pushed down and out. Six months after accident radiogram showed thickening of frontal sinus. Deviation of the eye more marked. Operation: Incision through eyebrow-flap into forehead. Frontal table of frontal bone necrotic—osteoma presenting—attachment near infundibulum in frontal sinus. Posterior table of frontal sinus showed healed fracture. No involvement of dura. After the operation position of eye is improving.

**3. Report of a Case of Optic Atrophy following Wood Alcohol Poisoning, by S. S. Quittner.**

This report appears in full in this issue of the *Journal*.

**4. Presentation of Clinical Eye Cases, by J. E. Cogan.**

Case of foreign bodies in the eye. X-ray plates show two bodies in one picture; apparently only one in another position, the two being superimposed.

Demonstration of trans-illumination with cold tungsten light of the ordinary electric ophthalmoscope.

Presentation of lens made of Crooke's glass, which cuts out all ultra-violet rays, but does not reduce vision.

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**COUNCIL MEETING**

At a meeting of the Council of the Academy of Medicine, held Wednesday, November 11, 1914, at the Bismarck, the following members were present: The President, Doctor J. J. Thomas, in the chair; Doctors Houck, Perkins, Sanford, Way, Spurney, Yarian, Lueke, Ford, Storey, Birge and Tuckerman.

The minutes of the last meeting were read and approved.

On motion the names of the following applicants were ordered published:

Active—H. F. Biggar, Paul J. Hanzlik, C. A. O'Connell.

The application of R. P. Biggs was referred to the Membership Committee; also the application for transfer of Doctor D. Földes to active membership from the Kent County Medical Society, Michigan.

The Secretary was directed to give a letter of transfer to Doctor Charles H. Clark, of City Hospital, to the Allen County Medical Society.

## ACKNOWLEDGEMENTS

A Textbook of Pathology. With a Final Section on Postmortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By Francis Delafield, M. D., LL. D., Emeritus Professor of the Practice of Medicine, College of Physicians and Surgeons, Columbia University, New York, and T. Mitchell Prudden, M. D., LL. D., Emeritus Professor of Pathology, College of Physicians and Surgeons, Columbia University, New York. Tenth Edition revised with the co-operation of Francis Carter Wood, M. D., Director of Cancer Research, Columbia University, New York. With 14 full-page plates and 694 illustrations in the text, in black and colors. William Wood & Company, New York, 1914. Price, \$6.00 net.

Kirkes' Handbook of Physiology. Revised and Rewritten by Charles Wilson Greene, A. M., Ph. D., Professor of Physiology and Pharmacology, University of Missouri. Eighth American Revision, with 509 illustrations, including many in colors. William Wood & Company, New York, 1914. Price, \$3.00 net.

A Manual of Diseases of the Nose, Throat and Ear. By E. B. Gleason, M. D., LL. D., Professor of Otology in the Medico-Chirurgical College; Aurist to the Medico-Chirurgical Hospital; Surgeon-in-Charge of the Nose, Throat and Ear Department of the Northern Dispensary; formerly one of the Laryngologists to the Philadelphia Hospital. Illustrated. Third Edition, thoroughly revised. W. S. Saunders Company, Philadelphia and London, 1914. Price, cloth, \$2.50 net.

Abdominal Operations. By Sir Berkeley Moynihan, M. S. (London), F. R. C. S., Leeds, England. Third Edition, entirely reset and enlarged. Two octavo volumes totaling 980 pages, with 371 illustrations, 5 in color. W. B. Saunders Company, Philadelphia and London, 1914. Price, cloth, \$10.00 net; half Morocco, \$13.00 net.

A Practical Medical Dictionary—of words used in medicine with their derivation and pronunciation, including Dental, Veterinary, Chemical, Botanical, Electrical, Life Insurance and other special terms; Anatomical tables of the titles in general use and those sanctioned by the Basle Anatomical Convention; Pharmaceutical Preparations, official in the United States and British Pharmacopoeias, and contained in the National Formulary; Chemical and Therapeutic information as to Mineral Springs of America and Europe, and comprehensive Lists of Synonyms. By Thomas Lathrop Stedman, A. M., M. D., Editor of the "Twentieth Century Practice of Medicine," of the "Reference Handbook of the Medical Sciences," and of the "Medical Record." Third Revised Edition. Illustrated. William Wood & Company, New York, 1914. Price, \$5.00 net.

A Manual of Physiology. With Practical Exercises. By G. N. Stewart, M. A., D. Sc., M. D., Edin., D. P. H. Camb., Professor of Experimental Medicine in Western Reserve University; Clinical Physiologist to Lakeside Hospital, Cleveland; formerly Professor of Physiology in the University of Chicago; Professor of Physiology in the Western Reserve University; George Henry Lewes Student; Examiner in Physiology in the University of Aberdeen; Senior Demonstrator of Physiology in the Owens College, Victoria University, et cetera. With colored plate and 467 other illustrations. Seventh Edition. William Wood & Company, New York, 1914. Price, \$4.00 net.

Rose and Carless's Manual of Surgery. For Students and Practitioners. Ninth Edition. Revised by Albert Carless, M. B., M. S. (London), F. R. C. S., Professor of Surgery in and Surgeon to King's College Hospital, London; formerly Examiner in Surgery to the Universities of London, Glasgow, Manchester, Liverpool and Leeds; Consulting Surgeon to the King Edward's Memorial Hospital, Ealing; to the St. John's Hospital, Twickenham, et cetera. William Wood & Company, New York, 1914. Price, \$6.00 net.



**Urgent Surgery.** By Felix L  jars, Professor Agr  r      la Facult   de M  decine de Paris; Chirurgien de l'Hopital Sainte-Antoine; Membre de la Soci  t   de Chirurgie. Translated from the Seventh French Edition by William S. Dickie, F. R. C. S., Surgeon North Riding Infirmary, Middlesborough; Consulting Surgeon Eston Hospital. Third English impression, with 20 full-page plates and 1086 illustrations, of which 729 are drawn by Dr. E. Daleine and A. Leuba, and 198 are from the original photographs. Volume I. Introductory—Head, Neck, Chest, Spine, Abdomen. William Wood & Company, New York, 1914. Price, \$7.00 per vol., cloth.

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## MEDICAL NEWS

**Doctor W. T. Barger** had returned to Cleveland from the Jackson Health Resort, Dansville, N. Y., and was making the Whitehall Hotel his place of residence, but will again return to Dansville, having accepted a permanent place on the Medical Staff of the Jackson Sanitarium.

**Doctor Charles C. Stuart** is now occupying new offices at 504 New England Building.

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**Doctor Howard Thomas Karsner, B. S., M. D.** (Pennsylvania), now Assistant Professor of Pathology in Harvard Medical School, has been appointed Professor of Pathology in the School of Medicine, Western Reserve University, and will begin his duties December 1, 1914. The following additional full-time instructors began service this year: Henry O. Feiss, A. B., M. D. (Harvard), D. Ss. (Edinburgh), in experimental medicine; Gaius E. Harmon, M. D. (Boston), C. P. H. (Mass. Inst.), in hygiene; Bradley M. Patten, A. B., Ph. D. (Harvard), in histology and embryology; George E. Simpson, B. S. (Illinois), in organic and biochemistry.

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**American Chemicals and Dyestuffs.**—The New York Section of the American Chemical Society has appointed a committee to examine into the feasibility of expanding the manufacture of chemicals and dyestuffs in the United States. This committee is composed of H. A. Metz, I. F. Stone, J. B. F. Herreshoff, David Jayne, J. M. Matthews, Allen Rogers and B. C. Hesse, chairman.

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**American Chemical Society Will Meet In New Orleans.**—The directors of the American Chemical Society have voted that it is not advisable to hold any general meeting of the society previous to the New Orleans meeting, April 1-3, 1915. They have also voted, in accord with previous invitations presented to the council, that the annual meeting of 1915 be held in Seattle, Washington, with adjournment to San Francisco, the exact date to be settled by the president and secretary after conference with members of the section immediately concerned.

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**Columbia University Appointment.**—Doctor Homer F. Swift has been appointed associate professor of the practise of medicine in the College of Physicians and Surgeons of Columbia University in succession to Doctor Theodore C. Janeway, now of the Johns Hopkins Medical School.

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**Second Eugenics Congress.**—On account of the situation in Europe and America created by the war, the executive committee for the Second Eugenics Congress has decided that it will be impossible to hold the proposed congress in New York City in September, 1915. The existing organization will be maintained, pending the re-establishment of settled conditions, when the committee will determine upon a new date. The executive committee hopes for the continued interest of those who have consented to serve as members of the several committees and as officers of the congress.

**Gift to Yale University Medical School.**—The corporation of Yale University has approved plans for the new pathological laboratory of the Medical School, in connection with the New Haven Hospital. This building is to be called the Anthony N. Brady Memorial, and is a gift of members of the Brady family.

**Chicago University Will Hire Refugee Professor.**—As an aid to the refugee professors of the University of Louvain, Belgium, the University of Chicago has decided to engage one of the staff, it was announced today, to conduct courses in the winter and spring terms.

**Proceedings of the National Academy of Sciences.**—In January, 1915, the National Academy of Sciences will begin the publication of Monthly Proceedings. The members of the editorial staff, with the fields of science represented by them, are:

*Astronomy:* E. B. Frost, Yerkes Observatory, Williams Bay, Wis.

*Mathematics:* E. H. Moore, University of Chicago, Chicago, Ill.

*Physics:* Henry Crew, Northwestern University, Evanston, Ill.

*Chemistry, Biological and Organic:* J. J. Abel, Johns Hopkins University, Baltimore, Md.

*Chemistry, Physical and Inorganic:* A. A. Noyes, Mass. Inst. Tech., Boston, Mass.

*Geology:* H. F. Reid, Johns Hopkins University, Baltimore, Md.

*Paleontology:* Charles Schuchert, Yale University, New Haven, Conn.

*Botany:* J. M. Coulter, University of Chicago, Chicago, Ill.

*Zoology:* R. G. Harrison, Yale University, New Haven, Conn.

*Genetics:* C. B. Davenport, Cold Spring Harbor, N. Y.

*Physiology:* W. B. Cannon, Harvard University, Cambridge, Mass.

*Pathology:* Simon Flexner, Rockefeller Institute, New York City.

*Anthropology:* W. H. Holmes, National Museum, Washington, D. C.

*Psychology:* J. McKeen Cattell, Columbia University, New York City.

*Ex-officios:*

*Home Secretary,* A. L. Day, Geophysical Laboratory, Washington, D. C.

*Foreign Secretary,* G. E. Hale, Solar Observatory, Pasadena, Cal.

*Managing Editor:* E. B. Wilson, Mass. Inst. Tech., Boston, Mass.

*Chairman of the Board:* A. A. Noyes, Mass. Inst. Tech., Boston, Mass.

The main purpose of the proceedings is to obtain the prompt publication and wide circulation of a comprehensive survey, in the form of brief original articles, of the more important scientific researches currently made by American investigators. The articles are to be much shorter and less detailed than those commonly published in special journals, and may subsequently be published in more extensive form in such journals. It is expected that the articles will as a rule vary from one to five printed pages in length, with a maximum limit of eight to ten pages in exceptional cases where the results of extended investigations are summarized, or the significance of a series of detailed publications is formulated. The articles are, however, to be precise, and to contain some record of the experimental, observational, or theoretical methods and results upon which the conclusions are based; but these statements are to be condensed, long tables of data and the details of the work being reserved for publication in special journals.

**The Massachusetts Society for Mental Hygiene** has opened an office at Room 313, Ford Building, 15 Ashburton Place, Boston. The officers of the society are: the Honorable Harvey H. Baker, Boston, President; Doctor Walter E. Fernald, Waverly, Vice-President; Doctor Charles E. Thompson, Gardner, Secretary; John Koren, Esquire, Boston, Treasurer. Executive Committee: Miss Edith M. Burleigh, Boston; Doctor James J. Putnam, Boston; Doctor Alfred E. P. Rockwell, Worces-



ter; Doctor Henry R. Stedman, Brookline; Professor Robert M. Yerkes, Cambridge. Doctor Frankwood E. Williams, formerly Resident Physician at Psychopathic Hospital, Ann Arbor, Michigan, and First Assistant Physician at Psychopathic Hospital, Boston, has been appointed Executive Secretary.

**The Philadelphia Post-Graduate School of Neurology.**—The neurological wards of the Philadelphia General Hospital offers unusual facilities for post-graduate instruction in nervous disease, these wards containing about four hundred patients illustrating all forms of organic, functional and psychopathic disease. The Philadelphia Hospital for the Insane, which is a part of the General Hospital and situated on the same grounds, has more than two thousand patients.

All the members of the Neurological Staff of the Philadelphia General Hospital are connected with neurological services in other hospitals and institutions, which will enable them to supplement the instruction given at the Hospital. With the approval and encouragement of the Director of the Department of Public Health and Charities, Doctor Richard H. Harte, the Neurological Staff has organized a Post-Graduate School of Neurology. The time is opportune for this step. Owing to the terrible war in Europe, it will probably be one or two years at least before American students can avail themselves of the neurological clinics and laboratories of London, Paris, Vienna, Berlin, Rome and other centers of medical instruction abroad.

Instruction will be arranged in four periods of six weeks each, one, two, three or four of which can be taken by the students. The first course of six weeks will begin Monday, December 7, 1914, and continue until the end of January. The second and third courses will be in February, March, April and May. Special short courses of two or three weeks each can be arranged for the months of June, July, August and September. The instruction will be given by the members of the Neurological Staff of the Philadelphia General Hospital and their assistants.

The staff is composed of eight members, four of whom are on duty from August 1st to February 1st, the other four from February 1st to August 1st. A limited number of clinical lectures will be given, but in the main the instruction will be in the nature of ward visits and conferences. Short special courses on Serology, Pathology, Neurological Ophthalmology, and the Jurisprudence of Nervous Disease and Insanity will be offered in connection with the clinical teaching. The time of the students will be fully occupied.

The fees for each period covering all branches taught will be twenty-five dollars. The only extra fees will be in courses like Serology and Pathology where an amount sufficient to cover the necessary expenses will be charged.

The faculty is composed of the following members of the Neurological Staff of the Philadelphia General Hospital:

Doctor Charles K. Mills.....	1909 Chestnut Street
Doctor Charles W. Burr.....	1918 Spruce Street
Doctor William G. Spiller.....	1906 Chestnut Street
Doctor James Hendrie Lloyd.....	116 South 21st Street
Doctor Charles S. Potts.....	2018 Chestnut Street
Doctor D. J. McCarthy.....	2025 Walnut Street
Doctor T. H. Weisenburg.....	2030 Chestnut Street
Doctor George E. Price.....	1700 Walnut Street

Doctor Francis X. Dercum, 1719 Walnut street, Consulting Neurologist to the Hospital, and a former active member of the staff, will take part in the instruction.—Doctor Charles K. Mills, Dean, 1909 Chestnut street, Philadelphia.

**Doctor Flexner in Chicago Stock Yards.**—Dr. Simon Flexner of the Rockefeller Institute, who came to Chicago to study the hoof and mouth disease, has returned to New York with a score or more of blood specimens taken from infected cattle in the prize herd in the isolation hospital at the yards.

Dressed in the regulation rubber coat, hat and boots of the veterinarian, he put in the entire day in the stalls of the infected cattle and in conference with Federal and State experts.

Doctor Flexner will attempt to cultivate the germ in his New York laboratories. If he can succeed in isolating it, a serum such as that used to fight hog cholera can be manufactured.

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**British Commander.**—Doctor Robert W. Geddes, Professor of Anatomy in McGill University, has been called by the British War Office to take command in one of the home regiments. Doctor Geddes was a reservist of the British army, having served with distinction in the South African War. He became Professor of Anatomy in McGill in 1912.

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**Memorial Medal Awarded to Sir Ronald Ross.**—The Bisset Hawkins memorial medal, awarded triennially by the Royal College of Physicians of London, in recognition of work in advancing sanitary science or promoting public health during the preceding ten years, was, on October 19, presented to Sir Ronald Ross, in recognition of his researches on malaria.

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**War Cause of Death.**—Doctor Hans Halle, Assistant in Plant Physiology in the University of Munich, has died as the result of wounds received in the war.

The death is announced of Doctor Maximilian Reinganum, Professor of Physical Chemistry, in Freiburg i. Br.

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**Swiss Surgeon Establishes Field Hospital at Besancon.**—Doctor Roux, the well known surgeon of Lausanne, has volunteered his services to the French Government to aid in caring for the wounded.

Doctor Roux, who is the best known member of the medical profession in Switzerland, has organized a field hospital at Besancon, for which he has provided all the medical instruments.

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**Refugee Students.**—The Aix-en-Provence University has invited the Belgian universities to send their faculties and students to Aix, offering to provide free lodging for the students. The university has asked the minister of education for the privilege of granting degrees to the refugee students.

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**Send Serum Supply to Front—Physicians Seek to Prevent Rather Than Cure Tetanus.**—It is officially announced that Doctor Emile Roux, Director of the Pasteur Institute, and Medical Inspectors Juillard and Chavasse, after studying the best means of using the anti-tetanus serum, have decided that every attempt must be made to allow the injection to be made as soon as possible after the wound is received, as it is important to prevent tetanus rather than to be compelled to treat it after it has set in.

Supplies of the serum will be kept at all ambulances nearest to the line of fire.



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## THE OUTFLOW FROM THE LIVER AND THE RELATIONSHIP BETWEEN THE PORTAL AND THE HEPATIC BLOOD FLOW

By J. J. R. MACLEOD and R. G. PEARCE

*(From the Physiological Laboratory, Western Reserve Medical School, Cleveland)*

The liver receives a double blood supply, the arterial blood being furnished under high pressure through the relatively small hepatic artery, and the venous blood under low pressure through the relatively large portal vein. Both streams empty finally into the intrahepatic lobular vein; hence the pressure in the arterial system must be reduced to that of the portal blood before the streams meet, which would indicate that the arterioles and capillaries of Glisson's capsule must offer a great resistance to the arterial blood. The arterioles are richly supplied with vasomotor nerves, whereas the portal venules are almost devoid of them. These venules are, however, very thin-walled and lie close to the arterioles. A consideration of the morphological structure of the liver therefore suggests that the degree of tension, or as we may say, the turgescence of Glisson's capsule, as determined by the blood pressure and the size of the arterioles of the liver, may have a marked influence on the volume of the portal flow. Gad suggested a similar hypothesis.

The following experiments were made to put the above hypothesis to the test, and also with the hope of furnishing further data as to the relative size of the moities of the portal and the hepatic blood. In order to accomplish these things, it was necessary to measure the outflow of blood from the hepatic veins, studying the effect on venous outflow of stimulation of the hepatic nerves, in the hope that the effect of such stimulation on the arteri-

oles would so far overshadow any effect on the portal venules that these would undergo dilation when the turgescence of Glisson's capsule was removed. We have also made some experiments on the effect of the injection of adrenalin into the portal vein in order to control the results of the above experiments, and have gathered data as to the relative importance of hepatic and portal blood flow.

*Methods.* In large dogs under ether anesthesia, the aorta and the vena cava were tied just above the renal veins and a cannula placed in the central end of the vena cava. The dorsal veins emptying into the vena cava between this level and the hepatic veins were caught in mass ligatures, although experiment showed that it was impossible to include all of them by this method. The portal vein, hepatic artery and the hepatic plexus were dissected out and electrodes were placed on the latter, and loose ligatures placed about the hepatic and portal vein, so that they might readily be found during the experiment. The thorax was opened and a ligature was placed about the vena cava at its entrance into the thorax. Tension on this ligature would divert the blood pouring from the hepatic veins out through the cannula in the lower end of the cava and into a special recording apparatus, which accurately measured and timed ten cubic centimeters of outflow. The blood pressure was taken from the carotid, and artificial respiration was administered.

### Results

#### 1st. *The magnitude of the combined flow.*

This was calculated as the average flow of three separate determinations in cubic centimeters per second as measured at the beginning of the experiment. In many of the experiments the flow was calculated also as cubic centimeters per second in 100 grams of liver.

The average flow found in ten experiments was 6.5 per second, the minimum being 4.2, the maximum 8.9. Calculated per 100 grams of liver substance, the flow varied between 1.06 and 2.4 c.c. per second. It was possible to show only a general relationship between the magnitude of the flow and the arterial blood pressure.

#### 2nd. *The magnitude of the outflow with either the hepatic artery or portal vein clamped.*

(a) Comparison between the total outflow when one vessel is clamped and the total outflow, gave us approximately the relative contribution of either vessel.



When the hepatic artery is clamped the reduction in total flow amounts to 26 to 32 per cent of the combined flow; that is, about one-third of the total blood flowing through the liver is derived from the hepatic artery.

The clamping of the portal vein gave results which corroborated those made on the hepatic artery, for they show that clamping of the portal vein causes the outflow to diminish by about two-thirds.

The minute size of those branches of the hepatic artery which actually enter the liver as compared with the enormous size of the portal vein would lead one to expect a much larger contribution of blood through the latter vessel even though the pressure differences in the two vessels are very great. The result explains why it is that deflection of the portal flow into the vena cava (Eck fistula) should ordinarily create no very marked metabolic disturbance. By still retaining from one-fourth to one-third of their normal flow (through the hepatic artery) the liver cells can perform their functions sufficiently to prevent a serious accumulation of such substances as ammonia, monosaccharides, et cetera, in the systemic blood, unless excessive amounts of these substances are being absorbed from the intestine.

(c) *The effect of stimulation of the hepatic plexus.*

TABLE I

The effect of Stimulation of the hepatic plexus on the outflow of the liver. (Blood pressure in brackets.) Blood flow in cubic centimeters per second.

Expt.	Normal	During stimulation of plexus	Normal	During stimulation of plexus
	5.84 [134]	9.75 [134]	5.62 [150]	9.75 [150]
	6.20 [140]	9.75 [134]	5.04 [150]	9.75 [150]
	5.84 [140]	9.75 [140]	6.64 [150]	6.95 [150]
		6.64 [150]	6.20 [150]	6.95 [116]
		5.84 [160]	7.67 [150]	6.95 [110]
		5.84 [160]		6.95 [110]

The hepatic plexus was cut and the peripheral end was stimulated with strong induced currents. The invariable result of this was an immediate acceleration of the blood flow, followed

after a period of a few seconds by a return to normal. The extent and duration of this acceleration was somewhat inconstant but it was always present. (See table No. 1 for typical experiment.)

This initial acceleration is no doubt to be attributed to a squeezing out of blood in the liver as a result of vasoconstriction. This constriction affects the branches of the hepatic artery much more than those of the portal vein, for it affects both the volume flow and the pressure in the hepatic artery, while the constriction of the portal venules, although it raises the portal pressure, causes no measurable change in portal flow.

The subsequent return to the normal flow indicates either that the constriction does not last for long, or that it persists, but is accompanied by a compensatory increase in flow through the portal vein. In view of the fact that Burton-Opitz found constriction of the hepatic artery to persist at least as long as the hepatic plexus was stimulated, we are forced to conclude that a compensatory or reciprocal increase in portal flow had occurred.

Since, as already mentioned, this author could not detect any change in portal flow when the peripheral end of the hepatic plexus was stimulated, although he was able to observe a rise in portal pressure, it follows that the compensatory increase in the outflow in our experiments cannot be due to an active vasodilatation of the portal radicles, but to their passively opening up on account of a lower pressure in the neighboring arterioles. This tendency to open up which results from the removal of the arterial turgescence must be greater than the constriction of the vessels resulting from stimulation of the hepatic plexus. The tissues of the capsule of Glisson must act somewhat in the manner of erectile tissue; with a normal inflow through the hepatic artery this tissue must exercise a certain compression on the portal radicles, but when the arterial inflow is cut down, the latter vessels must open up and permit more blood to flow through them. That this passive dilatation of the portal radicles does not entail an initial fall in total outflow—because of a temporary stagnation in the (portal) blood flow—is to be explained by the fact that the blood, which has already gained the hepatic lobule itself is not affected by the diminution in turgescence in the interlobular tissues; it flows on, but has added to it the blood which has been pressed out of the hepatic arterioles as a result of their constriction.



Although there is at present no other evidence than the above that such a compensatory increase in the portal venules does occur, it is of interest to note that Burton-Opitz has found the hepatic artery to be become dilated when the portal blood flow is made to cease by deflecting it into the renal vein.

Stimulation of the hepatic plexus after ligation of the hepatic artery caused only a very transient if any increase in flow, which result is no doubt explained by a squeezing out of the blood in the hepatic artery, or possibly in the portal venules. That there is no permanency in the increased outflow in the experiment as compared with those of the previous groups indicates that the portal venules were fully dilated from the beginning, the arterial tension being low because the arteries were ligated.

#### 4th. *The action of adrenalin on the hepatic blood flow.*

These experiments were undertaken partly to furnish further evidence for or against the above hypothesis concerning the effects of stimulation of the hepatic plexus, and partly to find out to what extent constriction of the portal venules might curtail the outflow of blood. The adrenalin was injected in quantities of 2 c.c. of either 1/10,000 or 1/5,000 in the pancreatic duodenal vein.

Any changes in the blood flow due to the rise in general arterial blood pressure are discounted in our experiments because the outflowing blood was either collected in a large receiver and not permitted to enter the heart until several measurements had been taken, or the small receiver was used but quickly emptied and another measurement made before the adrenalin had affected the arterial blood pressure. The observations were made with and without ligation of the hepatic arteries.

In practically every instance, whether with or without ligation of the hepatic arteries the adrenalin produced a definite diminution in outflow. We have already alluded to the fact that although Burton-Opitz succeeded in showing that a rise in portal blood pressure occurred after the injection of adrenalin into the portal vein, yet he could not make out, by stromuhr measurements of the portal inflow, that this had suffered any curtailment. The present results are therefore mainly of interest in that they supply such evidence.

It will be noted that the diminution in outflow, both absolutely and relatively, was usually much more decided when the hepatic arteries were intact than when the only blood supply to the liver was through the portal vein.

That adrenalin should cause a diminution in liver outflow, and stimulation of the hepatic nerves should not do so, when the hepatic artery is ligated indicates that the vasomotor supply to the venules must be very feeble.

### Conclusions

1. The total outflow of blood from the liver of the dog varies between 1.06 and 2.40 cc. per second and 100 grams of liver. There is only a very general relationship between the magnitude of the flow and the mean arterial blood pressure.

2. Even after the vessels of the hepatic pedicle have been clamped, blood still collects in the vena cava. Part of this comes from minute lumbar veins; the remainder may be due to collateral circulation.

3. Occlusion of the hepatic artery usually causes the outflow to diminish by about 30 per cent, but since the exact ratio between the flow in the portal vein and the hepatic artery will depend on the extent to which these vessels are under vasomotor control at the time of observation, the diminution may be considerably greater or less than 30 per cent.

4. Occlusion of the portal vein usually diminishes the outflow by about 60 per cent.

5. Stimulation of the peripheral end of the cut hepatic plexus, with both artery and vein intact, causes an immediate increase in the outflow, after which this returns approximately to its original amount. This return to the normal flow is explained as due to a passive dilatation of the interlobular portal venules resulting from a lowering of the arterial tension in the capsule of Glisson.

6. The changes in outflow following stimulation of the hepatic plexus are very much less marked, or absent altogether, when the hepatic artery is ligated.

7. Injection of adrenalin (2 cc. of 1 in 10,000) into the portal vein causes an immediate decrease in the outflow. This result is practically the same with unligated as with ligated hepatic arteries. It indicates that the ramifications of the portal vein in the liver are supplied with vasoconstrictor nerve fibers. Since a similar diminution did not occur when the hepatic plexus was stimulated, the portal vasomotor nerve fibers must be very feeble.



## EPIDEMIOLOGY OF WHOOPING COUGH, MEASLES, SCARLET FEVER AND DIPHTHERIA, IN CLEVELAND FOR 1913

BY MEMBERS OF THE THIRD YEAR CLASS IN MEDICINE  
AND R. G. PERKINS

The work summarized in the following pages was done by members of the class in Hygiene for the required thesis in that course, and is the second in the series, which we hope to continue until adequate financial support enables the Health Department to carry on the work.

*Sources of Information.* The cases are investigated by the Sanitary Officers of the Health Department, each case being recorded on a separate card. They are filed at the Health Department, and by the courtesy of that department were made accessible to the student.

For comparative records from other places, the last available annual reports were used, as well as the reports of the bureau of the census.

*Methods of Record and Analysis.* These were made uniform in all the diseases. The individual cases were distributed on the city map according to addresses, and different colored pins were used to indicate the various stages, an arbitrary division being made as follows:

1. Children under school age (six or less).
2. Children attending common schools.
3. Children attending parochial schools.
4. Children attending Lutheran, or private schools.
5. High school students.
6. Adults (sixteen or over).

In this way a graphic picture of the general distribution, the age distribution and the comparative responsibility of the various types of schools was obtained.

Through the courtesy of the Medical Inspector of Schools and the heads of the various parochial schools, the boundaries of the school districts were obtained and delimited on a special map. The boundaries of the Lutheran and private schools were too

variable for such delimitation. Maps were constructed on the basis of this information, and the cases referable to each school summarized for the district. The total cases of each disease were then compared with the total school population for that school district, to ascertain the proportion of cases in relation to the number of children attending the school. Finally a summation of these comparisons for the whole series of diseases was made.

The incidence and mortality were compared with the incidence and mortality in Cleveland in former years, in proportion to the estimated population, and also with the statistics in health reports elsewhere, and the results tabulated.

Age and sex so far as possible were also tabulated.

The diseases investigated will be taken up in the order determined by the prevalent age of the reported cases, beginning with the one affecting the highest proportion of children under six, and a summary of the whole series will follow.

### WHOOPIING COUGH

N. L. ZINNER and WM. MARKUS

Monthly Incidence in Cleveland from 1905-1913.

Month	1905	1906	1907	1908	1909	1910	1911	1912	1913	Avr.	Avr. %
Jan. ....	10	32	36	75	109	15	126	46	62	57	7.3
Feb. ....	16	53	95	109	93	16	220	37	110	82	10.3
March .....	56	49	61	107	103	36	332	48	82	97	12.9
April .....	35	54	100	62	58	47	269	56	158	93	12.3
May .....	71	83	89	61	50	36	228	45	129	88	11.6
June .....	19	53	72	104	54	49	158	63	107	75	9.9
July .....	38	84	117	85	17	57	85	75	118	75	9.9
August ....	42	32	123	78	7	94	41	60	63	60	7.9
Sept. ....	19	19	61	39	25	42	25	29	34	23	3.0
Oct. ....	10	21	71	12	36	13	18	48	36	29	3.8
Nov. ....	6	55	46	34	29	23	19	50	22	31	4.1
Dec. ....	8	29	74	39	71	42	37	50	52	45	5.9
Total ....	330	564	965	805	652	470	1558	607	973	63	

This year again the greatest number of cases was recorded in the spring and early summer, contrary to the usual belief that the height of the epidemic is in the winter and the early spring. It will be observed from the monthly averages that this has been the rule in the last nine years.



## SEX AND AGE

Ages	Cases			Deaths Total	Mortality Total
	Males	Females	Total		
1 yr.	53	56	109	31	28.4%
1-2	69	63	132	17	12.8
2-3	60	60	120	4	3.3
3-4	56	80	136	3	2.2
4-5	60	57	117	3	2.5
5-10	160	174	334	1	0.3
10-15	3	9	12		0.0
15-20	1	3	4		0.0
20-25	1	1	2		0.0
25-30	2	1	3		0.0
30-35	0	0	0		0.0
35-40	0	1	1		0.0
40-	0	3	3		0.0
	465	508	973	59	6.06%

The youngest case was three weeks, the oldest sixty-seven years.

The TOTAL number of cases under school age was 718, and all the deaths, to the number of 59, occurred in this period, making the percentage mortality for under school age 8.23.

On the basis of school age, it was noted in addition that

718 or 73.8% of all cases were under school age,

244 or 25.1% of all cases were of school age, and

11 or 1.1% of all cases were over school age.

The sexes were practically evenly divided in the older cases, the percentage of females affected among the infants being larger, with 380 cases as against 338 males.

## Mortality

As compared with the figures of last year, the mortality in the first two years is rather lower, showing 28.4% deaths of cases under one year, and 12.8% in the second year of life, or 19.5% for the two years as against 29.7% in 1912.

All deaths occurred in children under school age.

The complications as noted on the death certificates are detailed in the following table:

Complication	Total Deaths	Per Cent	Males	Females	Under 1 Year	1 Year and over
Broncho-Pneumonia	17	28.8	9	8	3	14
Bronchitis .....	5	8.4	2	3		5
Convulsions .....	9	15.2	6	3	7	2
Teething .....	1	1.7		1	1	
Lobar Pneumonia....	13	22.03	6	7	9	4
Endocarditis .....	1	1.7		1	1	
Ileo-colitis .....	2	3.4		2	2	
Gastro-enteritis .....	3	5.1	3		3	
No complications....	8	13.5	2	6	5	3
Grand Total.....	59		28	31	31	28

Comparisons of the relation of deaths from whooping cough to all other deaths and the death rate per 100,000 living are shown for Cleveland for the last ten years:

### CLEVELAND, OHIO

Year	Deaths from all causes	Deaths from W. C.	Estimated population	W. C. per cent of all deaths	Death rate of W. C. per 100,000
1904	6476	7	430,000	0.1080	1.62
1905	6424	24	440,000	0.3736	5.45
1906	7353	41	470,000	0.5584	8.72
1907	7678	36	500,000	0.4688	7.20
1908	7177	22	515,000	0.3065	4.27
1909	7032	29	540,000	0.4124	5.37
1910	8092	44	560,000	0.5437	7.85
1911	7967	87	580,000	1.0930	15.00
1912	8149	36	600,000	0.4417	6.00
1913	9454	59	620,000	0.6240	9.51

Additional comparisons have been made with published reports of some of the larger American cities. In addition, comparisons have been made with the rates recently published by the Public Health Service for 1912 and the first half of 1913:

City—	1906-10	1911	1912	1913
New York .....	7.00	8.70	5.00	7.82
Baltimore .....	15.1			7.13
Boston .....	11.25	15.60	10.40	7.14
St. Louis .....	5.70	4.14	7.72	3.07
CLEVELAND .....	6.48	15.00	6.00	9.51

### Summary

Total cases .....	973
Incidence per 100,000.....	157
Total deaths .....	59
Mortality per 100,000.....	9.51
Percentage mortality under school age.....	8.23
Percentage mortality during school age.....	0.00
Percentage mortality after school age.....	0.00
Death per cent in males.....	8.28
Death per cent in females.....	8.15
Total incidence in public schools.....	121
Total incidence in parochial schools.....	19
Incidence per 1,000 in public schools.....	3.46
Incidence per 1,000 in parochial schools.....	0.11
Incidence per 1,000 in other schools.....	0.00



## MEASLES

H. V. PARYZEK and P. S. MURPHY

Monthly Incidence in Cleveland from 1905-1913.

Month	1905	1906	1907	1908	1909	1910	1911	1912	1913	Avr.	Avr. %
Jan. ....	20	360	56	248	31	728	93	168	305	223	7.43
Feb. ....	28	871	101	384	55	747	171	180	671	356	11.86
March ....	46	1174	164	492	115	1045	396	274	1266	552	18.40
April ....	50	744	237	413	221	1447	385	369	934	533	17.76
May ....	73	899	460	529	601	756	329	553	879	564	18.80
June ....	148	506	615	359	436	234	102	311	620	370	12.33
July ....	32	114	246	113	178	50	45	96	213	121	4.03
August ....	11	21	59	52	51	12	42	33	50	37	1.23
September ..	16	3	18	28	23	11	31	19	34	20	0.66
October ....	26	7	73	19	41	8	20	25	44	29	0.96
November ..	15	12	183	21	163	9	28	76	99	67	2.23
December ..	58	26	217	27	349	27	118	174	100	122	4.06
	523	4737	2429	2685	2264	5074	1760	2278	5215		

With the exception of 1906 and 1910, Cleveland never had so extensive an epidemic of measles as occurred in 1913. As usual the highest incidence was in the spring and late winter months, over 80% of the total cases being reported in the first half of the year. In the latter part of the month of June, there is a rapid drop, coinciding with the closure of school, but in the fall there is no notable rise until December, or about three months after school begins.

## SEX AND AGE

Ages	Incidence			Deaths			Mortality % at each age		
	M	F	T	M	F	T	M	F	T
1 yr.	60	47	107	6	7	13	10	15	12.1
1-2	216	137	353	22	10	32	10	7.3	9.1
2-3	354	259	613	7	10	17	2	3.8	2.7
3-4	370	299	669	3	4	7	0.8	1.3	1.4
4-5	418	344	762	2	4	6	0.5	1.1	0.8
5-6	531	385	916	0	0	0	0.0	0.0	0.0
7-9	662	517	1179	5	1	6	0.7	0.2	0.5
10-14	150	121	271	0	0	0	0.0	0.0	0.0
15-19	36	29	65	0	0	0	0.0	0.0	0.0
20-24	43	43	86	1	0	1	2.3	0.0	1.7
25-29	24	22	46	0	0	0	0.0	0.0	0.0
30-34	16	26	42	0	0	0	0.0	0.0	0.0
36-40	2	4	6	0	0	0	0.0	0.0	0.0
	2882	2233	5115	46	36	82			

In the fatal cases of the first year two-thirds of the children were under six months old, and it is clearly seen that the mortality decreases rapidly from that age. Tables similar to those under Whooping Cough, giving the decennial records for Cleveland and a comparison with other places, are added:

Year	Deaths from all causes	Deaths from measles	Estimated population	Measles per cent of all deaths	Death rate of Measles per 100,000
1904	6476	43	430,000	0.6330	10.00
1905	6424	8	440,000	0.1245	1.81
1906	7353	85	470,000	0.1157	18.09
1907	7678	35	500,000	0.4558	7.00
1908	7177	41	515,000	0.5714	7.96
1909	7032	35	540,000	0.4977	6.48
1910	8092	97	560,000	1.2110	17.32
1911	7967	38	580,000	0.4895	6.55
1912	8149	34	600,000	0.4172	5.66
1913	9454	82	620,000	0.8630	13.2

City—	1906-10	1911	1912	1913
New York.....	21.00	13.00	13.00	11.69
Baltimore .....	7.49			20.53
Boston .....	12.17	10.70	15.4	10.50
St. Louis .....	8.45	15.70	2.90	15.33
CLEVELAND .....	11.37	6.55	5.66	13.22

### General Summary

Total cases .....	5,215
Incidence per 100,000.....	834.4
Total deaths .....	82
Mortality per 100,000.....	13.9
Percentage mortality under school age.....	21.93
Percentage mortality during school age.....	.04
Percentage mortality after school age.....	.06
Deaths. Per cent of males.....	56.2
Deaths. Per cent of females.....	43.8
Percentage mortality in males.....	16.31
Percentage mortality in females.....	15.04
Total incidence in public schools.....	1,647
Total incidence in parochial schools.....	228
Total incidence in other schools.....	21
Total school population in public schools.....	83,000
Total school population in parochial schools.....	26,000
Incidence per 1,000 in public schools.....	19.84
Incidence per 1,000 in parochial schools.....	2.74

### SCARLET FEVER

A. R. TIMME and R. S. REICH

Monthly Incidence in Cleveland from 1905-1913

Month	1905	1906	1907	1908	1909	1910	1911	1912	1913	Avr.	Avr. %
Jan. ....	44	68	121	64	107	73	312	153	81	113	9.91
Feb. ....	34	74	78	34	72	51	343	135	87	101	8.9
March ....	21	54	101	50	63	64	463	165	113	110	9.7
April ....	29	36	125	30	46	72	524	151	128	127	11.2
May ....	37	46	102	45	54	84	491	136	110	123	10.8
June ....	48	33	58	28	42	67	288	165	79	90	7.9
July ....	15	47	34	23	28	51	241	102	42	54	4.7
August ....	28	40	34	13	21	83	169	76	57	58	5.1
September	45	91	44	73	29	59	140	61	68	68	6.0
October....	70	121	56	77	57	95	160	106	106	94	8.2
November	53	101	94	107	57	92	154	124	84	96	8.2
December..	67	98	74	108	61	141	131	132	85	100	8.8
	501	809	921	652	637	932	3416	1506	1040	94	
Incidence per 100,000	114	172	184	127	118	166	588	251	166.4		



The incidence is apparently decreasing, but the increased mortality, as noted later, is suggestive of missed cases.

### SEX AND AGE

Ages	Incidence			Deaths			Mortality % at each age		
	M	F	T	M	F	T	M	F	T
1 yr.	8	3	11	2	3	5	25	100	45
1-2	16	10	26	8	6	14	50	60	54
2-3	52	27	79	11	6	17	21.1	22.2	21.5
3-4	47	55	102	11	5	16	23.4	9.1	15.7
4-5	59	54	113	4	4	8	6.8	7.4	7.1
5-9	200	209	409	19	17	36	9.5	8.1	8.8
10-14	74	82	156	3	5	8	4.0	6.1	5.1
15-19	35	32	67	1	0	1	2.8	0.0	1.5
20-24	16	21	37	0	0	0	0.0	0.0	0.0
25-29	10	11	21	2	2	4	20.0	18.0	19.0
30-34	3	4	7	0	0	0	0.0	0.0	0.0
35-39	3	7	10	0	1	1	0.0	14.3	10.0
40-	0	2	2	0.0	0	0	0.0	0.0	0.0
	523	517	1040	63	54	117	12.0	10.4	11.25

In the first five years of life there are 331 cases and 60 deaths, giving a mortality for that period of 18.1%. Compared with 1912, with mortality of 8.77% for the same ages, and 6.57% for all ages, it would appear that the epidemic of 1913 was about twice as severe as that of the preceding year.

The monthly mortality was as follows:

Month	Cases	Deaths	Mortality
January .....	81	12	15.0%
February .....	87	7	8.0
March .....	113	8	7.0
April .....	128	9	7.0
May .....	110	9	8.0
June .....	79	6	7.6
July .....	42	10	23.9
August .....	57	6	10.5
September .....	68	14	20.6
October .....	106	12	11.3
November .....	84	11	13.0
December .....	85	13	15.3
Total .....	1040	117	11.25%
1912 .....	1506	99	6.5%

It is seen from the above that the lowest mortality occurs at the period of highest incidence, and vice versa.

The following diseases were given as immediate or contributory causes of death:

Toxemia.....	11	
Nephritis .....	10	
Diphtheria .....	7	(intercurrent)
Myocarditis .....	5	
Meningitis .....	4	
Heart failure .....	4	
Endocarditis .....	2	
Pneumonia .....	2	
Exhaustion .....	1	
Hyperpyrexia .....	1	
Cellulitis of neck .....	1	
Convulsions .....	1	
Lymph gland necrosis .....	1	
Cardiac dilatation .....	1	
Pertussis .....	1	(intercurrent)

The remainder of the 117 deaths were designated merely as Scarlet Fever.

On the basis of school age the distribution is as follows:

435 or 42.02% of all cases were under school age, with a mortality of.....	15.4% (67)
489 or 47.02% of all cases were of school age, with a mortality of.....	7.7% (38)
116 or 11.15% of all cases were over school age, with a mortality of.....	4.3% ( 5)

In the Public (83,000) and in the Parochial Schools (25,000) there were definite epidemics noted of moderate degree. In Sackett School, through February, March and April there were a number of successive cases and a recurrence in October, with 37 cases in all. A large proportion of these were from an orphans' home in the district.

In Outhwaite School there were 11 cases, nearly all in October; in Watterson School there were 10 cases, nearly all in April, and the same number at the same time in Tremont. St. Ladislav School had two epidemics, one in March and another in October, November and December, with 20 cases. These schools, however, are those with the largest school population and serve congested neighborhoods. It was conspicuous in the preparation of the pin maps that these school epidemics were either preceded or followed, or both, by a well-marked increase of incidence in children under school age in the district.

As with the other diseases, there are appended decennial and comparative tables from Cleveland and elsewhere.



Year	Death from all causes	Death from Sc. Fever	Estimated population	Sc. Fever % all deaths	Death rate of Sc. Fever per 100,000 living
1904	6476	5	430,000	0.0770	1.16
1905	6424	47	440,000	0.7313	10.68
1906	7353	66	470,000	0.8975	14.04
1907	7673	121	500,000	1.5768	24.20
1908	7177	34	515,000	0.4723	6.60
1909	7032	28	540,000	0.3981	5.18
1910	8092	67	560,000	0.8279	11.96
1911	7967	185	580,000	2.3346	31.90
1912	8149	99	600,000	1.2148	16.50
1913	9454	117	620,000	1.2312	18.72

City—	1906-10	1911	1912	1913
New York.....	20.00	15.00	12.00	9.43
Baltimore .....	7.36			6.78
Boston .....	11.81	10.70	4.40	10.50
St. Louis .....	9.73	26.85	5.78	5.20
CLEVELAND .....	12.39	31.90	16.50	18.80

### Summary

Total cases.....	1,040
Incidence per 100,000.....	166.4
Total Deaths.....	117
Mortality per 100,000.....	18.72
Percentage mortality under school age.....	15.4
Percentage mortality of school age.....	7.7
Percentage mortality over school age.....	4.3
Percentage of male deaths.....	49.7
Percentage female deaths.....	50.3
Percentage mortality in males.....	12.04
Percentage mortality in females.....	14.4
Total incidence in public schools.....	307
Total incidence in parochial schools.....	88
Total incidence in other schools, etc.....	94
Incidence per 1,000 in public schools.....	3.67
Incidence per 1,000 in parochial schools.....	3.40

### DIPHTHERIA

H. V. WEIHRAUCH and S. J. SPOTANSKI

Monthly Incidence in Cleveland from 1905-1912

Month	1905	1906	1907	1908	1909	1910	1911	1912	1913	Aver.
January .....	74	137	162	61	149	60	136	105	224	7.72
February ....	71	131	87	55	84	38	131	98	201	6.93
March .....	82	124	104	52	101	40	120	83	191	6.58
April .....	75	96	81	33	70	72	87	99	181	6.24
May .....	74	108	90	34	41	40	114	104	190	6.58
June .....	58	80	62	25	38	32	80	121	138	4.75
July .....	50	73	47	42	50	39	89	118	148	5.10
August .....	78	60	60	32	53	48	108	161	124	4.27
September ..	100	116	48	67	71	71	160	243	247	8.51
October .....	126	274	88	150	120	103	248	594	415	14.14
November ..	126	250	93	191	134	110	206	526	404	14.00
December ..	108	228	83	168	114	98	157	353	405	14.00
	1022	1677	1005	915	1025	751	1636	2604	2857	

With a total incidence of 2,868 cases, diphtheria was more prevalent in Cleveland during the year 1913 than at any time during the past decade. The increase in the total number of cases is distributed through the first six months of the year. As would be expected of a disease in which the school is supposed to serve as the chief focus of infection, the vacation period shows a marked drop in the incidence. Similarly, more cases occurred during September, October, November and December than during any other months.

## SEX AND AGE

Ages	Incidence			Deaths			Mortality % at each age		
	M	F	T	M	F	T	M	F	T
1 yr.	27	31	58	12	4	16	44.44	12.9	27.58
1-2	75	62	137	18	16	34	24.	25.8	24.81
2-3	137	98	235	20	13	33	14.59	13.26	14.04
3-4	130	110	240	12	11	23	9.23	10.00	9.58
4-5	145	107	252	19	15	34	13.1	14.01	13.49
5-6	305	250	555	18	17	35	5.9	6.8	6.3
7-9	286	277	563	10	14	24	3.49	5.05	4.26
10-14	162	204	366	7	8	15	4.32	3.91	4.09
15-19	61	75	136	0	2	2	0.	2.66	2.66
20-24	36	67	103	1	0	1	2.77	0.	2.77
25-29	29	49	78	3	1	4	10.34	2.04	5.12
30-35	23	39	62	0	1	1	0.	2.56	2.56
36-	28	44	72	1	1	2	3.57	2.27	2.77
	1444	1413	2857	121	103	224	8.31	7.28	7.83

On the basis of school age it was noted in addition that

1,093 or 38.5% of all cases were under school age.

1,423 or 49.8% of all cases were of school age.

351 or 11.7% of all cases were over school age.

The percentage of deaths was 7.8 as against 6.39 last year, giving a larger epidemic, with a consequently higher rate per 100,000 living, and also a higher per cent mortality. The number of missed cases which are unavoidable in an epidemic of this size, however, make the per cent of deaths hard to ascertain, and one must take the present figures with caution. It may be noted that the mortality under one year was 27.5%, with a steady decrease as the age of the patient increased. The total of deaths was the highest since 1902.



The same tables as in the other diseases are appended.

Year	Deaths from all causes	Deaths from diphtheria and croup	Estimated population	Diphtheria % of all deaths	Death rate of diphtheria per 100,000 living
1904	6476	135	430,000	2.08	31.4
1905	6424	109	440,000	1.54	24.8
1906	7353	166	470,000	2.25	35.3
1907	7678	97	500,000	1.26	19.4
1908	7177	83	515,000	1.15	16.1
1909	7032	67	540,000	2.27	12.4
1910	8092	118	560,000	1.45	21.0
1911	7967	129	580,000	1.61	22.2
1912	8149	162	600,000	1.98	27.0
1913	9454	224	620,000	2.36	36.1

City—	1906-10	1911	1912	1913
New York .....	39.00	26.00	22.00	24.80
Baltimore .....	9.3			14.09
Boston .....	6.8	18.00	14.20	21.20
St. Louis .....	9.0	16.85	18.20	26.66
CLEVELAND .....	20.8	22.2	27.8	33.33

In the school districts one is struck by the fact that many of the districts appear to be immune, while others suffer with heavy epidemics, which are more or less continuous throughout the year. Whether this is accident or due to more or less careful observation of rules of disinfection and prophylaxis, is difficult to ascertain.

The parochial schools, with a total population of 26,691, had a total of 267 cases, or an incidence of approximately one per cent, while the public schools, with a population of 83,000, showed a total of 686 cases, or approximately eight-tenths of one per cent. The highest incidence among the public schools was in Sackett, with 32 cases, and among the parochial schools in Our Lady of Lourdes, with 47 cases.

With regard to the duration of the infection in the throat and nose, the following information has been taken from the City Diagnosis Laboratory report for 1913:

To the ruling of the Board of Health in 1912, that no case should be released from diphtheria quarantine until two negative cultures in succession at one day apart had been reported, was added an additional ruling in the late autumn to the effect that the first release culture should not be taken earlier than eight days after the onset of convalescence. Analysis of the records indicated that in many cases this caused unnecessary hardship, and the rule was modified to read so that the first re-

lease could be taken eight days after the case was reported. At the same time it was ordered that two swabs, one from the nose and one from the throat, should be required in release cultures, and the system of having the district nurse take the releases was begun.

Of a total of 2,967 cases quarantined (excluding cases transferred to the City Hospital and cases which died), the average duration of quarantine was 22.9 days. This figure is, however, excessive, as the period of quarantine had to be obtained by subtracting the date of quarantine from that of release, regardless of the number of cases in the family. In this way of course many were kept in quarantine after recovery until all were well and the whole house could be released. The appended table tabulates the results in ten-day periods. It may be noted that in the first ten-day period, on further analysis, there are found to be 51 cases released in six days or less. These occurred before the proper enforcement of the eight-day rule, and should not be found in subsequent reports.

Tabulation by Ten-Day Periods

3 to 10 days	404 cases
10 to 20 "	731 "
20 to 30 "	401 "
30 to 40 "	240 "
40 to 50 "	124 "
50 to 60 "	61 "
60 to 70 "	35 "
70 to 80 "	27 "
80 to 90 "	23 "
90 to 100 "	6 "
100 to 110 "	7 "
110 to 120 "	2 "
120 to 130 "	4 "
137 "	1 "
148 "	1 "
Total	2,067 cases

To recapitulate:

There was a greater number of cases of diphtheria in Cleveland in 1913 than in any year during the past ten years.

The gross mortality was greater than that of any year since 1902.

The percentage mortality per 100,000 was higher than that of any year since 1906.

Public schools, subject to inspection, show a lower rate of incidence than parochial schools without inspection.



The disease is essentially one of infancy, childhood and adolescence, infants of one year and under showing by far the highest mortality rate.

Males and females are affected practically equally. The statistics of 1913 bear out those of former years, showing diphtheria to be essentially a school disease.

The incidence for the year 1912-13 was higher than that of any previous years. Should this increase continue for a considerable period, one might legitimately raise the question as to the efficacy of present methods of prophylaxis and control of the disease.

### SUMMARY

Total cases .....	2,857
Total deaths .....	224
Mortality per 100,000.....	36.1
Percentage mortality under school age.....	15.6
Percentage mortality during school age.....	2.8
Percentage mortality after school age.....	2.2
Per cent of male deaths.....	54.0
Per cent of female deaths.....	45.9
Percentage mortality in males.....	8.3
Percentage mortality in females.....	7.2
Total incidence in public schools.....	686
Total incidence in parochial schools.....	267
Incidence per 1,000 in public schools.....	8.2
Incidence per 1,000 in parochial schools.....	10

An attempt was made to reduce the school figures to incidence per 100,000 of the school population, but for the present this is not available for two reasons. In the first place, the number of children of school age for whom no place of attending school is reported, shows that this question is unduly neglected by the persons reporting the cases, and in the second place, it has not been found possible to obtain anything like an accurate estimation of the school population except in the public schools. These difficulties may perhaps be obviated in subsequent years, but at present no conclusions can be drawn from this portion of the information.

## GENERAL TABULATION

	Whooping Cough	Measles	Scarlet Fever	Diphtheria
Total cases .....	973	5,215	1,040	2,868
Incidence per 100,000.....	157	834.4	166.4	
Total deaths .....	59	82	117	224
Mortality per 100,000.....	9.51	13.9	18.72	36.1
Incidence under school age..	718			1,093
Incidence during school age	244			1,423
Incidence over school age....	11			331
Death rate under school age	8.23	21.93	15.4	15.6
Death rate during school age		.04	7.7	2.8
Death rate after school age..		.06	4.3	2.2
Percentage mortality in male	8.15	16.31	12.04	8.31
Percentage mortality in female .....	8.15	15.04	14.40	7.28
Total incidence in public schools .....	120	1,645	311	667
Total incidence in parochial schools .....	5	240	88	224

Total school population in public schools.....	83,000
Total school population in parochial schools.....	26,000
Total incidence in public schools.....	3,137
Total incidence in parochial schools.....	1,880

Such is "Life."—"Life," says *The Journal of the American Medical Association* in its issue of October 3, "is a bright and interesting humorous weekly, published in New York City. To physicians *Life* is of interest because of its systematic blackguarding of the medical profession. Anything medical makes the editor of *Life* see red, and much talent—and money—have been utilized by *Life* to discredit the triumphs of modern medicine and to support the various organizations that make a profitable business of opposing scientific medicine. For some years *Life* has acted as the unofficial organ of the antivivisectionists, and no libel on the humanitarianism of medical men has been too gross for *Life* to give it publicity. *Life's* reactionary attitude in matters affecting public health is further emphasized by some of its advertisements. The dangerous and fraudulent acetanilid preparation 'Bromo-Seltzer' has, for consideration, been heralded through the pages of *Life* as a 'cure' for headache; the corpulent readers of *Life* have been urged to take 'Fat-Off,' a worthless and fraudulent nostrum, sold as an obesity cure and characterized by the government chemist as a 'paste made of soap and water' in the proportions of ten of the former to nine of the latter; 'Odorono,' exposed in *The Journal*, Jan. 3, 1914; and the fraudulent 'Morley Ear Phone' (see *The Journal*, Nov. 22, 1913) are both given space in recent issues of *Life*; the current number contains a half-page advertisement of 'Buffalo Lithia Springs Water' (one dose of lithium to every 200,000 gallons of water) recommending it for 'Bright's disease, renal calculi, stone in the bladder, albuminuria, rheumatism and gout.'" For further advertising frauds given space in *Life*, *The Journal* refers to the Propaganda department of the same issue. All this is by the way. The reason for the comment is to bring before its readers a letter recently written to *Life* by a layman, Mr. Charles H. Fahs of Madison, N. J. Mr. Fahs' letter is a fine document which answers some of the statements made by *Life*. Every physician should know its contents. But *Life* refused it and it appears in *The Journal of the Outdoor Life* for September and in *The Journal of the American Medical Association* for Oct. 3, 1914, p. 1211.



## RECENT EXPERIMENTS BEARING ON THE HISTORY OF SUGAR IN THE ANIMAL BODY\*

By J. J. R. MACLEOD, Western Reserve Medical School,  
Cleveland, Ohio.

Since the time of Claude Bernard it has commonly been held that the surplus of dextrose absorbed during digestion into the portal blood is retained as glycogen in the liver, to be subsequently given up to the systemic blood as this requires it to make good the losses due to tissue consumption. Although there is nothing to indicate that this view is not in general correct when the conditions are strictly physiological, yet there has accumulated a large amount of evidence which indicates that under abnormal conditions the stored glycogen may, in part at least, become removed from the liver otherwise than as dextrose.

There are several ways by which such a disappearance of glycogen might be demonstrated. The most satisfactory would be by comparisons under various conditions between the total amounts of dextrose discharged from the hepatic veins into the inferior vena cava and of glycogen meanwhile disappearing from the liver. For technical reasons, however, it has so far been impossible to secure data from which such comparisons can be made. We have accordingly to be satisfied with the much less reliable information which is supplied by comparing changes in the percentage of sugar in the blood and the percentage of glycogen in the liver. It is obviously only when there is a very marked lowering of the percentage of glycogen accompanied by no, or practically no, increase in that of the blood sugar that any conclusions can be drawn from such experiments. In hydrazine and in certain stages of phosphorus poisoning such changes have been conclusively shown to occur.

The fact that in such conditions as the above glycogen may disappear from the liver without hyperglycemia developing leads to the suggestion that even when hyperglycemia does become established, as in the ordinary forms of experimental diabetes, some of the glycogen may also be converted into other substances than dextrose.

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\*Being a paper read in the Section of Anatomy and Physiology at the Annual Meeting of the British Medical Association, Aberdeen, July, 1914.

Printed in full in the *British Medical Journal*, September 19th, 1914.

To demonstrate this we cannot, however, depend upon comparisons between changes in the percentage amounts of liver glycogen and blood sugar. We must rather seek in the blood issuing from the liver for the presence of such possible derivatives of glycogen. We have been trying to do this partly by histological and partly by biochemical methods; and, as conditions exhibiting an abnormally rapid breakdown of hepatic glycogen, we have chosen puncture of the fourth ventricle, stimulation of the splanchnic nerve, and temporary obstruction of the blood supply to the liver.

The histological observations in this connection were first of all made by Ishimori working in Hofmeister's laboratory. Both in his and in our own experiments, in which Mr. Johns has collaborated, rabbits have been employed, the liver being removed immediately after death by stunning, fixed in alcohol, and stained by glycogen by the admirable carmine method of Best. At the outset it was shown by numerous controls that after feeding with excess of carbohydrates the hepatic lobule was uniformly crowded with glycogen, and that after starvation it contained only a trace, located in the cells immediately adjacent to the central vein, with, perhaps, a narrow fringe at the periphery of the lobule. After a moderate meal of carbohydrates, a picture intermediate between these two extremes was met with—namely, the central and the peripheral portions of the lobule contained glycogen, but the intermediate areas were quite free of it. It was found that ether anesthesia for over an hour did not disturb these relationships.

When, on the other hand, the liver was taken from fed rabbits, in which, while under anesthesia, the greater splanchnic nerve had been stimulated off and on for some time, or on which *pique* had been performed, a very different picture was obtained, for it was found that the glycogen had become discharged from the lobule in a very irregular manner, some parts being still tightly packed with it and others empty, but in quite a different manner from that observed after partial starvation. The most remarkable fact of all was made evident by examination under the high power—namely, that masses of carmine-stained material were located in the blood vessels, which we have never observed to be the case in the preparations from normal animals.

As far as can be judged from such observations, it would appear as if the glycogen had been extruded from the liver cells, perhaps not actually as glycogen but at least as some colloidal sub-



stance (probably a dextrine). This would explain why it has sometimes been impossible to detect any increase in blood sugar, although glycogen is rapidly disappearing, for the colloidal material would obviously become precipitated along with the proteins, which must be removed before the reducing power can be determined. This colloidal material will not, however, exist as such in the blood for long, for it will very quickly become hydrolyzed by the very powerful diastatic enzyme therein present, so that it is not surprising that Lepine and his co-workers should have found that under certain conditions there is more free sugar (*sucré actuel*) in blood taken from the carotid artery than in that taken simultaneously from the right ventricle. Although I think it would be rash to draw any final conclusions from these observations, yet I consider that they offer us much encouragement to prosecute this matter further, not only because of their bearing on the present problem, but because they indicate that it is not necessary for a colloidal substance to become broken down before it can pass through a cell membrane.

The biochemical investigations have been undertaken by myself and Mr. A. M. Wedd in order to see whether any of the glycogen that disappears becomes transformed to lactic acid. For this purpose it has been necessary to use dogs, the animals being either decerebrated or kept deeply under ether throughout the experiment, and killed while still under anesthesia. Blood was collected from the hepatic veins through a cannula inserted in the inferior vena cava, and the amount of lactic acid in it determined by the method of von Fürth and Charnass. To serve as a normal control one sample of blood was removed at the start of the observation, after which some condition known to cause hyperglycemia was established and other samples of blood removed. The conditions investigated have been stimulation of the splanchnic nerve, general asphyxia, and temporary occlusion of the blood supply to the liver. So far, however, the only one of these conditions which has been found to cause lactic acid as well as dextrose to appear in large amounts in the blood is the last mentioned. In a typical experiment it was found, for example, that the normal percentage of dextrose was 0.128, and of lactic acid 0.043; after applying a clamp to the portal vein and hepatic artery for five minutes, the sugar percentage rose to 0.226 and the lactic acid to 0.057, and these values fifteen minutes later were 0.107 and 0.076 respectively.

The local asphyxia produced in the liver cells by cessation of blood supply was therefore followed by an increased discharge of sugar and lactic acid. In the case of the lactic acid invariably, and in the case of the sugar in nearly all of our experiments, the increase was most marked, not in the blood which escaped immediately after the removal of the clamp, but in that collected fifteen minutes later. We may therefore conclude that the local asphyxia of the liver cells causes sugar and lactic acid to be produced in very excessive quantities; and although in this fact alone there is no warrant for concluding that glycogen is the source, yet from numerous other experiments in which the glycogen has been determined we are almost certain that this is the case.

Experiments by Embden and his collaborators have also shown that when the liver is perfused outside the body lactic acid appears in the perfusion fluid, only provided the liver contains glycogen or the perfusion fluid an excess of dextrose.

We may sum up by saying that the products of glycogen breakdown in the liver may comprise, besides dextrose, some colloidal substance (a dextrine) and lactic acid.

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**Offering of the University of Cambridge.**—We learn from the *London Times* that the Belgian minister in London has received a letter from the council of the senate of the University of Cambridge offering to professors, teachers and students of the University of Louvain such facilities in the way of access to libraries, laboratories and lectures, together with the use of lecture-rooms, as may secure the continuity of the work of that university during the present crisis. While the University of Cambridge is not in a position in its corporate capacity to offer direct financial assistance for the support of members of the University of Louvain, efforts are being made in Cambridge to provide such help privately. Mgr. Barnes, Roman Catholic chaplain of the University of Cambridge, has explained that the university had invited the University of Louvain to migrate to Cambridge, and there to continue its own separate studies, granting its own degrees and generally continuing its activities as at its own foundation, Cambridge supplying the facilities necessary for the technical carrying out of the work. Hospitality in the way of living accommodation and so forth would probably be offered by the individual colleges and by private residents. Through the American Legation at The Hague the professors of the University of Oxford have offered a home for the winter to the young children of the professors of the ruined University of Louvain. Doctor van Dyke has sent the message by two messengers over two different routes, hoping that one or the other may carry it through. The academic staff of University of London, University College, are prepared to offer hospitality to about 70 members of French and Belgian universities, whether professors, teachers, or students, men or women, who may find it necessary to take refuge in England. Special arrangements will be made as far as possible to meet the needs of French and Belgian students who desire to continue their studies in London.—*Science.*



## RENAL SECRETORY FIBRES IN THE VAGUS NERVE

## The Influence of the Vagus Nerve on Urine Excretion

By R. G. PEARCE. From the Physiological Laboratory, Western Reserve University, Cleveland

A year ago in collaboration with Professor Leon Asher, of Bern, I reported a series of experiments<sup>1</sup>, which we believe demonstrate vagus secretory fibres to the kidney. Other investigators have attempted to discover in either the vagus or the splanchnic a nervous influence on urine secretion, but have failed since the circulatory changes following the stimulation of either of these nerves completely mask all other effects. Indeed most of the evidence leads to the conclusion that the nervous system plays a small role in urine formation.

In our experiments we believe that the circulatory factor is eliminated, and that whatever changes occur in the urine excreted during stimulation of the vagus must be referred to a direct influence on the renal cells. Our procedure was as follows: Cats or dogs were decerebrated under ether anesthesia, cannulae were placed in the carotid, trachae, and the ureters, in order to record the blood pressure, administer artificial respiration, and to collect the urine. The right kidney was denervated and served as a control kidney. The left splanchnic was cut, and the vagi sectioned in the neck. Electrodes were placed on the vagi below the heart inside the thorax. The amount of urine excreted by the left kidney before and during vagi stimulation compared with the urine of like periods from the denervated right control kidney, showed the influence of the vagus. The following table gives the results of a typical experiment.

TABLE NO. 1

Urine Secreted in Ten-Minute Period

Period	Right control		Left or kidney under vagus		Blood pressure
	kidney	% change	influence	% change	
1 rest	24	—	14	—	100
2 stim vagus	26	—8	26	—85	100
3 rest	15	—42	16	—40	80
4 vagus stim	30	—100	40	—150	90-95
5 rest	130	—330	56	—40	120
6 vagus stim	150	—15	198	—253	120

1. Asher and R. D. Pearce: *Zeitschrift fur Biologie*, Bd. 635, 1913.

Experiment October 24, 1913—Male dog, weight, 17 Kg. Decerebrated under ether anesthesia. Right kidney totally denervated, left splanchnic cut, electrodes placed on vagi below the heart inside the thorax, vagi in neck cut. Urine was collected in tubes 2 mm. diameter and graduated in mm. Blood pressure from carotid.

An examination of the results of this experiment shows that the amount of urine excreted by the experimental left kidney during a period of vagus stimulation is greater than that collected during the preceding normal interval. That these changes are independent of the general systemic conditions is seen, first, by a comparison of the amount of urine secreted during the different periods by the experimental left, and the denervated right or control kidney; and secondly, by an examination of the systemic blood pressure.

Previous investigators have found that stimulation of the peripheral end of the vagus below the level of the heart results in an inhibition of renal function, but their experiments were done with the splanchnic intact. We have confirmed this observation, but cannot offer any explanation for the phenomenon. Jost, a pupil of Asher, has recently reported some experiments which indicate that the splanchnic contains true inhibitory excretory fibres to the kidney. This fact offers an explanation why, in our experiments, in which the influence of the splanchnic was removed by section, an increase in urine formation followed stimulation of the vagus.

However, our experiments are open to the criticism that the stimulation of the vagus after section of the splanchnic might result in a vaso dilation of the vessels of the kidney, and account for the diuresis observed. To my knowledge this had not been tested experimentally and a series of experiments, under the same conditions which produce the increase urine secretion during vagus stimulation, were done in which observations were made, first on the volume of the kidney by means of the oncometer, and secondly on the blood flow from the kidney by actual measurement.

In no case did I find the slightest change in the kidney volume as shown by the oncometer during vagus stimulation.<sup>2</sup> In the case of the measurement of the outflowing blood from the renal vein the following procedure was adopted: The aorta was

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2. R. G. Pearce: *American Journal of Physiology*, Vol. 35, 151, 1914.



clamped below the level of the renal vessels and a cannula placed in the central end of the vena cava just below the renal veins. The right kidney vessels as well as both adrenal veins and the left spermatic vein were tied. A loose ligature was placed under the vena cava above the renal vein. A special recording apparatus which automatically measured and timed the passage of ten cubic centimeters of blood was attached to the vena cava's cannula. By closing the vena cava above the renal veins, accomplished by placing tension on the loose ligature, the blood was diverted and flowed out through the cannula into the recording chamber. The apparatus offered practically no resistance to the outflowing blood. In no case was there any indication of a change in rate of blood flow on stimulation of the vagus.

The above results, therefore, support the belief of Asher and Pearce that the vagus contains true excretory fibres to the kidney, and also fail to show the presence of vasodilator fibres in the same nerve.

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**Advantages in Bottling Pasteurized Milk While Still Hot—Laboratory Tests that Indicate a Possibility of Using this Method to Advantage.**—Investigators in the U. S. Department of Agriculture have found that the process of bottling pasteurized milk while hot has several advantages which make it seem probable that this method would prove economical and efficacious when practiced on a commercial scale. In an article printed by permission of the Secretary of Agriculture in the *Journal of Infectious Diseases*, the authors declare that this method results in bacterial reductions as great as, or even greater than, by pasteurization in bottles.

The principal advantage of the latter method for the ordinary systems in commercial use is the impossibility of the milk becoming contaminated again while being bottled. There is also some saving of milk, because there is no loss from evaporation. On the other hand, when milk is pasteurized in bottles, it is customary to cool the bottles by placing them in cold water. This necessitates the use of absolutely water-tight caps, otherwise some of the cold water is likely to find its way into the milk bottles, and even a very slight leak may result in contamination. Waterproof caps are not only expensive, but care is essential to see that they actually are waterproof, and moreover, bottles with chipped or otherwise damaged tops cannot be used, no matter how perfect the cap may be.

Laboratory experiments conducted by the investigators indicate that milk may be pasteurized, bottled hot, capped with ordinary cardboard caps, and cooled by a blast of cold air economically and with very satisfactory bacterial reductions. The air-cooling process requires a somewhat longer time than cooling by water, but in the laboratory it was found that thoroughly pasteurized milk, bottled immediately, could be cooled slowly without increasing the bacterial content. Whether or not the experience of the laboratory will be found true in commercial practice, remains to be seen. The Department of Agriculture, it is announced, will conduct experiments with a view to determining this important point.

Before the milk is poured into them, the bottles should be steamed for two minutes, the authors are careful to point out. This removes all danger of infecting the milk from the bottles, and is another advantage that this new method possesses.—*Agricultural Report*.

## "STAGE VERSUS CLASS"—CERTAIN ASPECTS OF FEVER IN PULMONARY TUBERCULOSIS

By G. W. MOOREHOUSE, M. D., Cleveland

Although the problem of fever will appear largely by inference in this paper, it has been the apparently inadequate appreciation of its significance and seriousness in pulmonary tuberculosis which has led to this presentation and comparison of two classifications of pulmonary invalids.

The first of these classifications is their division into stages of the disease, originally called to the attention of the profession by Turban, and modified by other observers. At the outset these stages were based solely upon the degree of involvement of lung tissue. The inadequacy of a purely anatomical classification, in depicting the condition of patients with pulmonary tuberculosis, was soon recognized, and various modifications have been proposed, of which the best known among us are those of Trudeau and the National Association for the Prevention and Treatment of Tuberculosis. In these modifications, in addition to a determination of the extent and severity of the physical changes, cognizance is taken of certain symptoms as indicators of the severity of the process.

To review here the modification proposed by the National Association, and largely used in this country, an individual with a slight initial lesion in the form of infiltration, limited to the apex or to a small part of one lobe, without tuberculous complications, with no constitutional symptoms, or these very slight, with slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours, especially if the patient is at rest, is classified as Stage I, and is further characterized by the terms "incipient" and "favorable."

Cases assigned to Stage II are characterized by the phrase "moderately advanced," and include such individuals only as present no marked impairment of function, either local or constitutional, with no serious tuberculous complications. The anatomical condition may either be localized consolidation, moderate in extent, with little or no evidence of destruction of tissue, or consist in disseminated fibroid deposits.

Stage III, characterized as "far advanced," provides for cases with marked impairment of function, local and constitutional, or serious tuberculous complications, with localized con-



solidation or cavitation or intense or disseminated areas of softening.

Over against this classical distribution of pulmonary invalids into stages, I wish to place a second distribution into what may be called classes. Here again we may conveniently make three groups, though each of these groups have been numerously subdivided. This distribution was suggested by Marcus Paterson of the Brompton Hospital Sanatorium under the terms "resting febrile," "resting afebrile, ambulatory febrile," "ambulatory afebrile." In different wording, Class I includes those individuals who are febrile while at rest, Class II those who are without fever while at rest, but become febrile when permitted to exercise, and Class III those who are afebrile even when exercising.

In a discussion of these classes it is extremely difficult to avoid a consideration of the use by Paterson of the theories of the development of resistance in tuberculosis as a working hypothesis upon which he has based his entire sanatorium regimen. This is especially difficult in view of the fact that, as I see it, his very careful selection of cases is usually disregarded. Although a general review of his work is not to be attempted, it will be desirable to consider his theories with reference to the causes determining the presence of an individual case in one or another of these classes.

According to Paterson's theories, which are largely those current and generally accepted with reference to infectious diseases in general and not tuberculosis alone, the presence of a case in a given class depends upon toxemia. The amount of bacterial products discharged is due, essentially, to the circulation through the diseased area. It is impossible to completely abolish the circulation, but the more complete the bodily rest secured, and the more complete the cessation of cough, the more quiet will be the respiration, the more greatly the circulation is slowed, the bacterial products being thereby reduced to the greatest extent practicable. It may be said here in parenthesis that a further reduction in circulation may be secured in certain cases by lung compression, which, when it can be applied, thus becomes of value to those for whom complete bodily rest does not suffice. If bacterial products are being largely discharged into the blood stream and are not met by an effective antibody content, the individual will be febrile even though at rest and falls in Class I.

Patients belonging to Class II have more nearly secured a

balance between the discharge of bacterial product and antibody content of the tissues. They are free from fever (toxemia) when at rest, but degrees of activity varying with the individual increases this discharge to a point at which the bodily defenses are overcome.

An individual belonging to Class III has secured through the antibody content of his tissues such a mastery of the possible discharge of bacterial products as to be able to increase it even as much as by a full day of hard labor without thereby overcoming his defenses.

To suggest merely the use by Paterson of this hypothesis in the treatment of tuberculosis, it will only be necessary to refer to the presumption that it is the presence of bacterial products in sufficient, but not in overwhelming, amount which leads to an effective production of protective substances, and that, given a patient who has a fair balance between these products of the disease and antibodies, or can secure such a balance under treatment, measures which will increase somewhat the presence of the bacterial products will at the same time tend to increase the antibody content.

Although this is not definitely stated, it appears that the patients in the Brompton Hospital Sanatorium have been largely selected from a more numerous group of cases which has been under treatment for some time; that this selection has been made with reference to the possibility of securing in the case of each patient accepted an increase of antibody content by means of an increase of bacterial products from the patient's own lesion. This increase of bacterial products in the circulation is secured by means of exercise gradually increased to five or more hours of hard labor. Manifestations of toxemia are treated by rest as absolute as is prescribed for a typhoid patient. It appears also that after admission those who do not prosper under this regimen are culled from the total for the application of other measures.

While the increase of antibodies appears in the above account to be the entire problem, it can scarcely be so. However important such a neutralization of the bacterial products may be, it seems reasonable to suppose that in many if not in all favorable cases the attainment of this balance must be aided by processes which result in a diminution rather than solely those which result in a neutralization of the bacterial products. Fibroid and other changes which may occur at the site of the lesion are effective



guardians of the body. To mention an extreme instance, an individual who has the resistance necessary to discharge a mass of lung tissue and form a fibrous wall about the resulting cavity may certainly be considered to have rid himself of a focus capable of throwing into the blood stream large amounts of bacterial products.

The least discerning would presumably assent promptly to the statement that of two tuberculous individuals the one with fever is in a distinctly more precarious condition than the one without. The determination, however, of the presence or absence of fever presents, in many instances, surprising difficulties, even to those most familiar with this disease. In the first place it cannot be determined by an occasional reading of the thermometer, for it is pre-eminently a characteristic of fever in tuberculosis to have this elevation of temperature over a very brief period even though it occur daily, and again to have the actual elevation at the highest point very slight. An onset of fever is most readily appreciated when it occurs in a patient who has been permitted to pass from any given degree of activity to a higher one. In such instances loss of appetite, increase of cough and expectoration, a diminution of the previous general feeling of well-being, and often, particularly if the onset has been more acute, headache and pains in the limbs. With such symptoms, the patient either exercising or at rest, a temperature of 99° F., occurring in men and perhaps somewhat higher temperature in women, leaves no excuse for a non-recognition of the presence of fever. According to Paterson, a temperature even up to 100° F., if it occurs with an entire absence of other symptoms of toxemia, while indicating a free discharge of bacterial products, suggests that these products are well balanced by the presence of antibodies. It is further necessary to consider other causes for fever, such as digestive disturbances, which in tuberculous individuals are especially apt to be associated with a rise of temperature. In all elevation of temperature in tuberculosis the burden of proof must rest upon those who would advise that such thermometer reading be disregarded or that they are not indicative of fever! What tends greatly to confuse us in this matter, as it does in many other problems associated with the treatment of tuberculosis, is the presence, in any large group of unselected pulmonary invalids, of individuals who recover with little or no struggle. Which one is thus to recover and which has a severe or losing fight before

him we have no means of ascertaining in advance and should, therefore, regard each case as a potentially difficult one, however slight may be the involvement.

After brief consideration any physician would probably assent to the truth of the statement that we have as yet little direct control of fever. The most efficient measures are such as are specific against its underlying cause. In the absence of specific measures such temporary effects as we are able to produce are recognized as being, on the average, rather harmful than beneficial, particularly in such long continued fever as is seen in tuberculosis. We must, therefore, rely upon the efforts of nature aided by rest, which not only limits discharge of bacterial products but presumably favors to the greatest degree those changes in the focus which will limit the further production of toxemia.

We will now refer to certain differences between stage and class. We need merely mention the fact that Stage I is the most favorable stage, since it implies the least serious or widespread involvement of lung tissue, while Class III is the most favorable class, indicating as it does the greatest mastery over the disease.

In its relation to groups of cases the stage of the disease is of great prognostic value. Among patients for whom adequate treatment is begun in the first stage a much larger percentage recover than is the case of those who have advanced to the second or third stage. The distribution by class has not been correlated with group prognosis, nor does there seem to be any necessity for so doing; it has, however, an individual prognostic value, since, in whatever stage the patient may be, an entrance into Class III is a necessity if a favorable result is to be secured. It may be helpful to regard the classes as milestones which an individual must pass in his course. Having passed the third milestone he is on the high-road which may lead ultimately to the desired goal of arrest and cure, there being no other access to these goals.

The stage may be recognized immediately, the proper class to which a patient is to be assigned is determined by observation. Barring well-recognized difficulties in the diagnosis of certain cases of tuberculosis, any individual may be assigned to his appropriate stage on the completion of the first physical examination combined with an adequate history. On account of the definiteness with which this assignment has been worked out, and on account of its distinct prognostic import, a classification by stages



is of undoubted value, and should be invariably employed in reporting methods or results of treatment. Accordingly it is desirable to assign any case of pulmonary tuberculosis to its proper stage at the beginning and again at the end of treatment. While a history gives certain clues to the proper distribution of cases into the three classes, it is not a matter which is actually accomplished upon the completion of the preliminary study of the case as is the distribution by stages, but depends primarily upon observation. Furthermore, the class to which a case is assigned may vary from time to time. It must, indeed, vary in a direction favorable to the patient, with improvement in his condition. But with respect to the assignment to stage a given patient, even after marked improvement, may show no change in the pulmonary lesions warranting his assignment to a more favorable stage, or, even in cases discharged as arrested, the final examination may show such dissemination of foci as would actually compel his assignment to a later rather than to a more favorable stage.

It follows from what has already been said that a mere recognition of stage and its prognostic import may actually be an obstacle to a proper appreciation of the needs of an individual patient. We may fail to meet individual conditions on account of a failure to recognize evidence of toxemia in cases apparently favorable, a mistake which may result in the greatest possible harm; or may do less serious damage by not recognizing that the patient has fair mastery of his disease, i. e., is in the third class, and thus hold him back unduly.

Reasons for the continued use of a classification by stages have been sufficiently commented upon. The distribution of cases by class is not so generally recognized or employed. The present paper may be considered a plea for its more general recognition, but not for its more general employment. Its greatest use lies in its educative value upon those who are concerned in the treatment of tuberculosis. If this discussion of the subject has contributed in any degree to a proper appreciation of the precarious condition of a tuberculous individual with fever, and our absolute dependence upon the two factors, time and rest, in the control of fever, it will have fulfilled its purpose.

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## BIOLOGICAL FACTORS IN THE PRODUCTION OF WARS\*

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War—the burden the human race still bears, the burden which, despite the ever-present hope for peace, has been bequeathed to us by the centuries which have passed, has ever been condemned in the name of religion, in the name of humanity, and in terms of profit and loss, yet today it rages more fiercely than ever before. Fresh treaties of peace have been made and broken until we ask: “Is man’s failure to achieve universal peace an arraignment of his capacity, or of his sincerity? Has he the power to achieve peace, or is it the will that is lacking?” A survey of the ancient history of great nations—India, Babylon, Persia, China, Rome—of the Middle Ages and of modern times, enforces the conclusion that man has lacked both the power and the will to end war and to establish peace. In a letter written in extreme age by Frederick the Great to Voltaire, he says: “For the future I cannot vouch. Running over the pages of history, I see that ten years never pass without a war. This intermittent fever may have moments of respite, but cease, never.” In the words of Goethe:

“Dream ye of peaceful sway?  
Dream on, who dream it may.  
War still is empire’s word.  
Peace? By the victor’s sword!”

War as such defies the analysis of reason, and indeed it is not easy to discover with precision what have been the causative factors of any particular war. The present war in Europe, for example, is explained by one historian as being due to race antipathies between the Germans and Slavs; by another, as a dynastic war between the ruling houses of the warring nations. General von Bernhardi, expressing Treitsche’s ideas, puts before his countrymen the alternatives of world domination or ruin. He speaks of war as a biologic necessity, as a great factor in the onward strife towards perfection. To him, war is a duty and nothing is more terrible than the government of the strong by the weak; war is the power by which the strong assert their

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\*Read before the Physicians and Surgeons Club, Toledo, O., December 8, 1914.



domination over the weak. Another writer gives as the cause of this war the longing for colonization, and the desire for supremacy on the sea. He says that Germany must make provision for the future expansion of the race—that she owes it to the world to spread her high ideals, her culture, her scientific attainments; that her population is increasing rapidly, and that she has not land enough upon which they may live and thrive. Still another feels that this war is due to the military system adopted by the European nations; that if a country trains and maintains standing armies for a period of years, then the men so trained must be permitted sooner or later to practice their profession. A man who always carries a loaded gun will some time fire it off.

Although, as we have seen, the causative factors assigned for this war are varied and numerous, yet on analysis no one of them can account for the situation, nor can all of them together explain why nations resort to arms for the settlement of their disputes, rather than to peace tribunals. To contrast the evils that come with peace with the valor and self-sacrifice called forth by war of course supplies no explanation. Men have worked unitedly for other ideals, and have made great progress in their wars against disease, against the sea, the forest and the changing seasons and climates, yet toward the solution of this problem, they have made little if any progress. In the present great war, which I am considering merely as an example of all the wars of the past—for they have varied only in mode—race antipathies are not sufficiently strong to account for the titanic struggle, for the division of men into minor races has been determined upon a more or less arbitrary chronological and linguistic basis, and the nations of Europe, as we know them today—Germans, Slavs, Celts, Latins, Greeks—are all members of the same Aryan race. Nor can the war be explained as being a competition of dynasties, for no ruler of modern times can act contrary to the desire of his people. As someone has said: "Sovereigns, nowadays, at their strongest are merely train dispatchers who can order a switch thrown in one or another direction." The four rulers who stand out most prominently in this conflict are King George, his two cousins, Emperor William and Czar Nicholas, and King Albert. In the court correspondence for July, 1914, is a personal letter from King George to Emperor William, but no one for a minute believes it contains a syllable which had not been read and approved by Asquith, representing the British

Government. No personal desire of King George for or against war could change the decision of the British Cabinet. Emperor William—the most commanding royal figure in Europe—has immense sovereign power; nevertheless, in the published correspondence we find him counseling moderation to the Austrians. The correspondence shows also that if Nicholas, the “Great White Czar,” could have directed affairs he would have held up the mobilization of the Russian forces until it was definitely determined whether or not Austria would give way on the Servian question. The officials and not the Czar decided that war was better for Russia than the previous state of things. As for King Albert, the exigencies of the moment decided the course for Belgium. France is the one country without a shadow of sovereignty and the President of that Republic is merely the chairman of a national committee of defense.

The contention that war is a necessity and a duty has been made through all the centuries by leaders of thought in every nation. As one writer has expressed it: “The world today is divided between followers of Jesus Christ and followers of Napoleon.” Bismarck, Frederick the Great, Cromwell, Peter the Great, Charles the Great, Machiavelli, Caesar, Alexander—a long list might be made of men who were not merely warriors and conquerors, but who were also thinkers and promoters of commerce and industry. That war is a duty is argued from the standpoint of morals and ideals; every race and nearly every period of history has had its so-called “Holy War.” In the Christian Era the attempt to harmonize war with religion has led the religionists to draw a distinction between the so-called just and unjust wars.

On the other hand, the advocates of Pacificism present a long list of heroes and leaders. An Utopian state of universal peace was visioned and hoped for long before the Christian Era, and in 821 A. D. a stone was erected at Lhasa to the everlasting peace between the courts of Thibet and China. The arguments for or against peace and for or against war, however, cannot change the fact that as one looks back over the pages of history he sees that it is an universal and inevitable law that among free, independent nations weakness means war, and that the nation which is not prepared to defend itself must eventually fall. History has proved repeatedly that the alliances and treaties of peace, which have been drawn up between nations and states,



were for self interest only, and are valid just as long as mutual fears and desires persist in equal force.

It is a salient comment on the first and second Hague Conference in 1899 and in 1907, and on the subsequent peace conventions, that during the last fifteen years eight wars have broken out—the Boer War, the Russo-Japanese War, the Italo-Turkish War, the French War in Morocco, two Balkan wars, the Civil War in Mexico, and the present war; and in *not one of these wars* did the parties submit their differences to arbitration. We call America a peaceful nation, we rather boast of our small standing army; yet during the period from 1775-1900—125 years—the United States engaged in no less than 17 wars, including the Indian wars and disturbances, varying in length from about 8 years—the American Revolution—to less than one year—the Spanish-American War. In Europe a period of 5 years—from 1815 to 1820—was striking enough to be designated as the Period of Peace.

To say that the present war is due to the desire for colonization or for supremacy on the sea does not even suggest a solution of the problem. It is not the love of money which leads great nations to spend 5,000 million dollars to secure a trade on which the profit cannot be more than 200 million a year. A glance at the history of almost any nation will show that foreign colonization is a wealth-draining incubus. Take Tunis, for example, where France has founded a colony in which, excluding soldiers and officials, there are about 25,000 French colonists, the number by which the native population in France is diminishing every six months. The value to France of Tunis as a market does not amount to the sum France spends directly on its occupation and administration. There are today in France more Germans than there are Frenchmen in all the colonies France has acquired during the last 50 years, and the trade between Germany and France outweighs enormously the trade between France and all the French colonies. Millions of Germans in Prussia and Westphalia make their living out of countries to which their political dominion in no way extends. The modern German exploits South America by remaining at home. The outside territories which a nation exploits most successfully are those of which it owns not a foot. The larger part of Great Britain's trade overseas is done with countries which she makes no effort to own or control.

I am not attempting any discussion of the desirability of war

or of peace, nor of the right or justice of the claims which lead this or that nation to make war. I wish only to point out, first, the fact that war is the inevitable resort by which throughout the history of the world nations have sought to settle their difficulties; and, second, that only some fundamental characteristic of the genus "homo" can account for this universal war tendency. No one questions the right of the lower animals to fight for what they want or need. This, we say, is their nature. We all know that the first law in nature is that of self-preservation, and that this law is exhibited by every living creature, the uni-cellular organisms even being engaged in an unending struggle for existence. The life history of every organism is one of contest, either against its enemies or against its own kind, that it may secure the necessary sustenance for existence. The necessities of this struggle for existence adapt the individual to its environment and therefore the natural defenses of the organism are strengthened and new ones are developed as a result of the surroundings. I think that we who have comparatively little difficulty in securing necessary sustenance fail to appreciate the great struggle that is constantly going on among animals. When we see a hawk swooping down and picking up a rabbit, or a fox chasing and capturing a chicken, we accept these acts as a matter of course without stopping to think that they are performed in obedience to nature's law in order that the attacking party may exist. The "call of the wild" is nothing more nor less than the natural call of the structures of which the individual is composed for necessary sustenance to replenish fuel that has been burnt up and to replace the products that have been eliminated. Those who live or who have been reared in cities or on cultivated land see nothing of this strife. Invention and domestication have made it comparatively easy to obtain what we need. Beef, swine, and sheep are dumb before the slaughter, and the chase is no longer necessary; but were these domesticated animals turned loose for only a few years and left to provide for themselves, then their primeval fighting natures and cunning would soon manifest themselves. He who searches the forest, the desert and the jungles and watches there the constant struggle between the attackers and the attacked gains a keener appreciation of what the struggle for existence means. Nowhere is this struggle as keen and fierce as on the desert, where intense heat and lack of moisture make existence extremely difficult. "Here the animal



life is lean and gaunt; if it sleeps at all it is with one eye open; and as for heat, it cares very little about it." For the first law of the desert to which animal life of every kind pays allegiance is the law of endurance and abstinence. After that requirement is fulfilled special needs produce the peculiar qualities and habits of the individual. Yet there is one quality more general than special, since almost everything possesses it, and that is ferocity—fierceness. The strife is desperate; the supply of food and moisture is small, the animal is very hungry and thirsty. What wonder then that there is the determination of the starving in all desert life? Everything pursues or is pursued—every muscle is strung to the highest tension. The bounding deer must get away; the swift following wolf must not let him," and so develop the strength, the cleverness and the cunning traits which make for self-preservation. This development is exhibited not only in animal life but in vegetable life as well, for in response to the urging of their untoward environment plants have developed reservoirs for the retention of the necessary moisture, and spines or thorns which furnish ample protection against their enemies.

How do these illustrations from animal and vegetable life apply to the question under discussion? Simply because they show that existence itself is universally the result of daily offensive and defensive acts. Who can say that during every day of his active life he is not fighting some battle with some one else? True; that battle, as a rule, is not a physical combat, but it is a battle just the same. It may be largely an intellectual battle, in which at his desk one is working out a method by which he may increase his business or his professional activity that thus he may acquire more money, the medium of exchange by means of which he secures certain things which he feels are more or less necessary for his own existence and for the existence of those dependent upon him. This conflict goes on and on, the fight often waxing so severe that the combatants resort to primitive physical means of settling the struggle for supremacy.

In this phylogenetic discussion then we discover one reason at least why during all these years of so-called civilization man has been unable to avert wars. War results not only from man's inability to control his natural instincts, however, but also from his refusal to recognize them; for example, why have all the spasmodic attempts at reform failed to abolish the so-called "social vice"? Because they have failed to recognize the under-

lying cause—the strong sexual instinct which is necessary for the propagation of the race—the instinct which is second in strength only to the law of self-preservation. You can no more abolish so strong an instinct than you can abolish hunger. It must be recognized and dealt with on natural grounds, and not on a sentimental basis. No progress has been made along this line, and none will be by the methods thus far employed. It is so with this problem which we are discussing here. The fact that we do not fight with teeth and claws and that we select for our weapons the human inventions of powder and sword does not alter the origin of the impulse which makes us fight. Without the wonderful equipment and armaments which the powers now have at their disposal, war would doubtless be much less destructive in the long run, but were that equipment lacking would wars be averted? No! Fighting would go on just the same, with whatever weapons the fighters might have at their command. The reasons for fighting are no more plausible now than they were centuries ago. To be threatened with having something taken away from one, which he feels belongs to him, or to have something withheld which might be of advantage to one, is still a stimulant which excites the reflex within one to get possession of more, or to retain what he has. When that stimulation is properly applied the reaction is a combat. Whether that reaction under certain conditions is called war or something else, the fundamental cause is the same. The reaction may be the stimulation of hunger, and the effort to procure food for existence, or it may be the stimulation for defense, and a man fights for his life, but whatever it may be, the result is the same.

Why are fighting units always made up for the most part of men between the years of 18 and 35? Simply because during those years of life the fight instinct is the strongest. It is during that period that man mates—that he goes forward to make his place in the struggle of life. Between these years man's threshold for peace is lowered and either physically or mentally the strong impulse to combat takes possession.

That trained soldiers are better fighters than those not trained is probably not as much the result of the discipline and regulation of the soldier's life as of the development of the fight instinct and the lowering of the non-combative threshold.

This biologic fact may be witnessed daily. Let a fight be started at any street corner and all able-bodied men will gather



round and watch it, and may even join the conflict. A year or so ago, while I was attending a baseball game an umpire's decision was questioned in a manner that made him resent it with a blow. In less than a minute no less than fifty men were striking, struggling and beating each other, and probably not a man there failed to feel a tenseness of mind and muscle. Why? Because the artificial threshold raised against primitive instincts by civilization fell with a crash. The fight was on and every man felt his strength and went into the battle or felt moved to join it. Everyone when present at a physical contest such as a football game must have experienced in himself and have witnessed in others the set jaw, the clenched hand, the fixed eye, the taut muscles—all the outward physiological manifestations of combat which man inherits from his remote ancestry—all this he does instinctively when anticipating a struggle.

If the factor which excites this fight-impulse be a stimulation of the contact-ceptors, the response is immediate. When one receives a blow he strikes back with force and might to subdue his adversary if possible. He does not as a rule turn the other cheek as has been so simply advised. He does this only when he feels unequal to the task before him. If the irritation be far away, the development of the reflex is more retarded but it is none the less sure.

Who among us has not altered his feeling regarding our national defense since the beginning of this war? There is just enough suggestion that we may be threatened by an invasion, to cause us to resist unconsciously—to regard more favorably the suggestion that our army and navy should be increased. The predisposing causes of this change of thought have been the increased armaments in Europe. The immediate exciting cause is the instinct of self defense.

There have existed one hundred years of uninterrupted peace between Canada and the United States. Why? Because nowhere along the boundary from the Atlantic to the Pacific are there any fortifications and armed men. Had such existed one can hardly doubt that some provocation would have occurred which would have resulted in a combat before diplomacy could have stopped it. As it is, should a difference arise before we could get ready for the fight, our ardor would lessen and war would be averted.

That the presence of armies and of preparations for combat

excite combat is shown daily by the large number of people killed annually in our country by men who make a habit of carrying weapons. By some act one provokes or irritates the fighting reflex in another and before the latter has time to control himself, if he is armed, as too many are, he draws an automatic pistol and a man lies dead. Think of the shame of 9,000 homicides a year in a country that boasts of its peaceful instincts, that hesitates to arm itself as a nation, and yet by allowing its citizens to carry arms produces a death rate that is appalling.

Can we avert wars? No, not entirely, but we may lessen the danger of war by lessening the sources of irritation—lessening the armaments. Peace Palaces will not accomplish peace, while armaments are increasing. Whether we shall ever reach that stage in which our brain thresholds will be permanently raised against the fight stimuli and our fight reflexes abolished, I do not know, but until then "Peace will be only a truce on the Battlefield of Time."

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**Game, Stock and Citizens.**—The epidemic of foot-and-mouth disease and its effect on the packing industry and the stock yards of Chicago have been commented on widely in the daily press from various points of view. "One of the most illuminating comments," *The Journal of the American Medical Association* believes, "appeared in a recent issue of the *Chicago Journal* under the heading 'Live Stock Versus Quail.' Taking the best available estimates of the amount of live stock contained in the State and figuring on an average value of horses at \$140 a head, milk cows at \$65, other cows at \$50, swine at \$15, sheep at \$6, and mules at \$150 (minimum valuations, as most will admit), the *Chicago Journal* says that the total value of live stock in Illinois would be \$435,276,000, for the protection of which the State Legislature appropriated for the current year a total of \$37,340. By way of comparison, the *Chicago Journal* quotes the appropriation for the protection of fish and game for the same time, which amounts to \$151,600. The *Chicago Journal* properly characterizes such a situation as 'intolerable.' It says: 'To spend four times as much money protecting quail, ducks and prairie chickens as we spend in caring for one of the basic industries of the State is sheer communal lunacy.' This is true. The farmers and business men of Illinois should see to it that every cent that is necessary to protect the live stock of the State is provided, no matter what economies may be necessary in other directions. But, if such appropriations are justified for the protection of the lives and health of animals, how much should be appropriated to protect the lives and health of the men, women and children of the State? Certainly more than for fish, game and live stock. Yet the appropriation for the protection of the 5,638,591 men, women and children in the State was for 1914 only \$120,000, \$30,000 less than was appropriated for the protection of fish and game. Are the lives of its citizens of less value to Illinois than the preservation of its quail and bass?"



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## EDITORIAL

### The True Value of Research

When the balance sheet of scientific progress is studied, the net gains do not always appear to the casual observer to be very large. If we place on the debit side of our account the large amounts of money and time which have been spent in carrying out and publishing the work, and on the credit side, the actual progress in knowledge which has been made, the balance in favor

of the latter is often disappointing; it looks as if the game had not been worth the candle.

The reason for this is that it is practically impossible to gauge the real value and application of many pieces of research work until some considerable time—it may be several years or even decades—has elapsed. Thoroughly familiar with all the work which has already been done in some particular field of scientific knowledge, the investigator, by research of his own, may penetrate far into hitherto unknown and neglected fields of scientific thought, leaving his companions so far behind that they cannot grasp the significance of his discoveries. They cannot see in his reports anything that helps them in the elucidation of their own particular problems, and the work is laid aside as being of no apparent value in relationship to the problems of the day. Ultimately, however, by exploration in some adjacent field of scientific knowledge, the true value of the buried discovery is brought to light, and the theoretical fact of yesterday comes to be the so-called practical one of today. It is needless to cite instances in the field of scientific medicine which bear on these statements; they are known by the dozen by every student of the healing art; they are known because sufficient time has now elapsed between the theoretical fact and its “practical” application to make the dependence of the one on the other perfectly apparent. It is, however, much more difficult to forecast, before the practical application is worked out, what particular pieces of recent research are likely to prove of value in this way. Indeed, the only means which we have of divining the probability is by closely watching through several years how the original discovery is becoming gradually correlated with those which are made subsequently.

To take again our example of the pioneer in a new land, for many years he must remain alone and isolated from the civilized world, until at last others, hearing of his success, begin to follow him, and the new country becomes opened up and developed. The original outpost settlement may not at first have seemed to the world at large to be of very much importance, but gradually, from the larger and larger numbers of people who migrate to it, the opinion comes to be reversed, and the praises of the original discoverer sung by everyone.

One piece of work to which these remarks undoubtedly apply is that of Bancroft and his pupil of Cambridge, England. His



work refers to the amount and nature of the gases of the blood under various conditions, and it is gathered together and told on pages of thrilling interest in a book entitled "The Respiratory Functions of the Blood," which has recently appeared. In the clear statement of the problems, in the unfolding of the schemes adopted to attack them, the *mastery*, and in the discussion of the results, the volume reminds one of those of Claude Bernard. But there is, besides, something which this older author could not command, namely, accounts of quantitative methods of such extreme accuracy that even the physical chemist can not outmatch them. And this, indeed, is one of the features of modern work in scientific medicine, namely, the substitution of measurements of accuracy for guesses and approximations. Bancroft's work is the best recent example that we have of the value and importance of painstaking accuracy of measurement and technique working side by side with thorough mastery of the literature and undivided application of thought. This book can, we believe, be taken as marking an epoch in the development of the science of medicine. It is only now, when we see the isolated contributions of many years assembled and arrayed in logical sequence, as they are in this book, that we can form a true estimate of the pioneer work which this author has done.

J. J. R. M.

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**Doctor Noyons at Louvain.**—*The British Medical Journal* states that Doctor Noyons, Professor of Physiology, at Louvain, has recently distinguished himself by his heroic conduct in remaining with his wife among the ruins of Louvain ministering to the wounded—Germans as well as Belgians. When the population of the city was informed that every inhabitant of the town must leave immediately, in order that the town might be razed to the ground by artillery, Doctor Noyons and his wife decided to remain in order to protect the 150 wounded who could not be removed in time. *The British Medical Journal* also calls attention to the fact that Louvain was in old times, as it is still, chiefly celebrated as a school of theology, but for anatomists it is associated with the great name of Andreas Vesalius. The reformer of anatomy was a student in the *poedagogium castri* and also in the *Collegium Buslidianum*, where he gained that knowledge of the ancient tongues which was to prove of such service to him in the scientific controversies of his later life. It was when he was at Louvain that Vesalius secured a human skeleton by climbing the gallows outside the town. He had to convey the bones home secretly, reentering the town by a different gate from that by which he had gone out, and articulating his stolen treasures in his rooms. He was afterwards spared the work of "resurrection" by the liberality of the burgomaster, who placed abundance of material for dissection and demonstration at his disposal. In 1536 or 1537 he dissected and lectured publicly. He seems, however, not to have been altogether comfortable in the theological atmosphere at Louvain, and some remarks which he made on the seat of the soul excited the suspicions of the heresy hunters.

## DEPARTMENT OF THERAPEUTICS

Conducted by J. B. McGEE, M. D.

**Lavage and Diabetes:** John P. Sawyer, in the *New York Medical Journal* for November 14th, presents a study of methods of lavage, placing special stress upon its value in diabetes. Thorough cleansing of the whole membrane is necessary to secure what are often extraordinary and surprising results; and this must include such a cleansing of the upper surface of the stomach that it seems to him only to be done with reasonable certainty with the patient reclining, the operator using active manipulation, and preferably bulbs rather than unaided siphonage. When so done, there is such considerably greater effect that trials repeated through fifteen years have convinced him of its superiority for most cases when lavage is to be used. The well established fact that in diabetes mellitus there is positively measurable increase of sugar, in the blood, has been of determining influence upon professional thought with reference to the clinical phenomena of the disease. By it, is now popularly explained, the existence of polyuria, of great thirst or hunger, occurring even in the face of the fact that the cells of the body are supplied by a plasma richer than normal in an important food substance. All professional effort has been directed to diminishing the hyperglycemia, as a causal factor, and in so doing to control the symptoms, whose dependence upon the hyperglycemia was almost universally believed. In 1903 and at various times since, he has reported a number of cases in which a thoroughly applied lavage of the stomach has exercised a wonderfully striking effect upon the clinical course of the disorder. In these cases, polyuria thirst, and the accompanying waste, were largely controlled. Having for a dozen years carried out this measure upon scores of patients with most gratifying results, he again calls attention to his observations, believing that in a trial of the procedure there will be conducted a series of physiological tests of patients tending to show that these distressing phenomena are not dependent so much upon the hyperglycemia as has been believed, and that the attempt to explain their occurrence entirely as a physiological effect of the increased sugar content of the blood is therefore not well grounded. To see an increased excretion of urine amounting to four quarts or more a day, suddenly drop to the normal of three pints, with cessation of thirst, with vastly lessened excretion of the nitrogenous waste products as measured by the urinary solids, with a rapid gain in weight and strength, is astonishing in a single case, and in repeated instances becomes overwhelmingly convincing. In scores of cases this experience has been observed; there has not been one case in ten in which the results have not been striking, exceeding the favorable clinical results usually experienced of most procedures employed. Analyses in three cases by Professor J. J. R. Macleod showed that the hyperglycemia persisted in practically unchanged amounts, and the clinical symptoms of polyuria and excessive elimination were controlled by the procedure of daily lavage of the stomach. In many instances patients who were rising hourly or many times a night to urinate, were, after one or two or three washings, able to sleep the night through with unbroken rest, and after a few days, polyuria of three to four quarts a day diminished to a normal amount. The total absolute excretion of sugar in twenty-four hours is usually lessened in the same degree in which the polyuria is controlled.

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**Syphilis:** B. Sachs, I. Strauss and D. J. Kaliski, in the *American Journal of the Medical Sciences* for November, treat of the modern methods of treatment of syphilis of the nervous system. They sound a warning against indiscriminate lumbar puncture. After all, the procedure is not indifferent or agreeable, and in every case the patient should be kept on his back for at least eighteen hours after the puncture. Intense head-



ache and symptoms of meningeal irritation are apt to follow the operation, more especially if this precaution is not observed. They anesthetize the site of the puncture by infiltration of the region between the spinous processes by a 0.5 novocain solution. In cases treated by a series of intraspinal injections the fluid is withdrawn for examination at the time of administering the serum, thus obviating the necessity of puncturing the patient merely to determine the influence of treatment. They have been guided in treatment of the clinical condition by the outcome of the various biological reactions. If examination shows the presence of an active luetic process, intensive treatment is administered. From their experience they are entirely disposed to agree with Dreyfus and others in holding that much more harm can be done by giving too little than too much treatment. It is also agreed by practically all authorities that the several contra-indications detailed in the beginning of the salvarsan era have gradually been reduced in number until now it may be said that the only real contra-indications to the injection of the drug are severe renal involvement, very marked cardiac disease with insufficiency of the cardiac muscle, impending coma in diabetes or nephritis, terminal conditions which are not likely to be benefited by salvarsan, and a known intolerance of the drug. They conclude that the most remarkable recent achievements in the treatment of syphilis of the nervous system are due to the possibilities of earlier recognition of all form of syphilitic diseases. Wherever there is a strong suspicion of syphilis, and particularly if there is corroboration of the diagnosis by examination of the blood, and of the cerebrospinal content, and even in the absence of such corroboration, most intensive salvarsan treatment should be instituted. Under the ordinary precautions such treatment will do no harm and may be productive of great good. In tabes dorsalis the subjective condition of the patient can be greatly improved, and the progress of the disease checked. In all cases of cerebral and cerebrospinal lues, the salvarsan treatment combined with mercury accomplished more than they were able to accomplish by any previous methods. The intravenous injection of salvarsan has been in their opinion the most satisfactory form of treatment. The intraspinal treatment possesses no advantage over the intravenous. They have shown definitely that the "salvarsanized" serum contains an infinitesimal trace of arsenic, and too little to be of any therapeutic value. The spinal fluid contains as much arsenic as does the "salvarsanized" serum. Up to the present time the results in general paresis have been the least satisfactory, but there is some reason to think that by the more careful elaboration of therapeutic methods more satisfactory results will be within reach.

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**Pilocarpin:** In the November number of the *American Journal of Clinical Medicine*, W. F. Waugh writes upon the therapeutic uses of pilocarpin. The therapeutics of jaborandi is at present that of pilocarpin. The other alkaloids of the plant are unknown to the clinician. Two remarkable properties have been discovered for pilocarpin. The one best known is its power of inducing sweating. Give the patient hypodermically a centigram of pilocarpin nitrate, and in from five to ten minutes a copious perspiration will start, and this action is favored by rest in a warm bed. In some cases the drug exerts its powers more particularly in causing a flow of saliva rather than of sweat. This must be credited to individual peculiarity. The stimulation of the other secretions is less powerful, but not less certain. He reports one case, that of a stout, powerful Irishwoman, who had never been able to nurse her children, who under daily small doses of pilocarpin was soon able to nurse her baby. In a short time she requested to be placed in confinement, as she felt an irresistible impulse to kill her husband. The pilocarpin was stopped, and the flow of milk ceased, and with it the homicidal impulse subsided. This observation has been corroborated by a Siberian physician,

who reported a case essentially identical. As a diaphoretic, pilocarpin has been utilized to break up colds, following febrile attacks, infections, or exposure. The earlier the remedy is employed the better are the results. He has employed this alkaloid for twenty-five years as a specific in sthenic erysipelas, never failing to find the malady readily controlled by it. No effect is manifested until a full dose has been taken, and then it is not moisture but a real profuse sweat that comes. But the erysipelatous flush at once begins to recede from the edges toward the point first attacked; and if the pilocarpin effect is maintained, the dermatitis is extinguished. In asthenic erysipelas, it should be used, but here the tincture of chlorid of iron acts as a specific. Pilocarpin has not received enough credit as an eliminant of toxins. Pilocarpin is also a specific for a symptom, that of pruritus. No matter what may be the cause of the itching, a sweat-inducing dose of pilocarpin stops it. If the cause is a continuing one, the itching necessarily will return, as, for instance, in permanent occlusion of gall ducts with reabsorption. For the itching accompanying jaundice after gallstone colic, a single dose suffices. This action of pilocarpin may be attributed to its elimination of the toxic matters in the skin that irritate the cutaneous terminations of the sensory nerves in a manner that produces itching instead of pain. The poison is swept out of the system by the sudoriparous glands. The other feature of the action of pilocarpin has received so little attention that few know of it. This alkaloid tremendously increases leucocytosis. It may well be, that to this as well as to its elimination of toxins is due some of its effect in acute infections. He believes that the values of pilocarpin are too decided to be overlooked, too great to warrant its neglect.

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**Blood Pressure:** The *Medical Record* for November 7th states editorially that the generally prevailing belief that all cases of nephritis are accompanied by high blood pressure must be corrected in the light of recent investigations. The importance of blood pressure studies from the viewpoint of diagnosis and prognosis in both of these conditions cannot be exaggerated, but an essential element in gauging the limitations of these studies is the recognition of the fact that in a fairly large percentage of cases of arteriosclerosis and nephritis, the blood pressure is normal or may be even subnormal. Recent observations of W. Janowski bring these facts into particularly sharp relief. In 200 cases of arteriosclerosis there was an increased blood pressure in 72 per cent. It is concluded that an increased blood pressure must be regarded as a valuable symptom of arteriosclerosis. The exceptions, comprising nearly one-third of the cases, in which the blood pressure is normal or subnormal may be said to "prove the rule," for these exceptions can be explained on the basis of certain well-marked clinical factors. It is pointed out that angina pectoris occurs more frequently in arteriosclerosis with normal blood pressure than in arteriosclerosis in which the pressure is heightened. These facts are of eminent significance, indicating that one must regard as particularly serious all cases of arteriosclerosis in which the blood pressure is normal or subnormal. In these cases there is a pronounced impairment of the nutrition of the heart muscles, manifesting itself in a disturbance of conductivity, as a result of which the heightened blood pressure cannot be maintained in the distal parts of the arterial tree. The second group of 50 cases in which arteriosclerosis was coincident with a nephritis apparently secondary to sclerosis of the smallest renal vessels showed a considerably higher rise in blood pressure than those of arteriosclerosis not complicated by nephritis. Only in 8 per cent of the cases of the latter category was there a blood pressure greater than 180 mm. Hg., while of the former category this limit was exceeded in 58 per cent of the cases. Moreover, in arteriosclerosis complicated with nephritis there is considerable rise of the pulse pressure. The third group, in which



arteriosclerosis was not evident, comprise both acute and chronic cases. In the 7 cases of acute nephritis, the blood pressure varied between 130 and 180 m.m. and was highest when the symptoms were most pronounced, and particularly during the development of uremic manifestations. Both pulse pressure and blood pressure show this rise coincident with the onset of uremia, a fact not only of diagnostic but also of prognostic significance. In chronic nephritis there are two groups, in one of which the blood pressure is normal, and in the other of which (including 84 per cent of the cases) it is heightened. This observation, together with the results of various functional tests, indicates that the older classification of the parenchymatous, the interstitial and the mixed types of nephritis, is no longer in accord with clinical facts.

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**Digitalis:** An editorial in the *New York Medical Journal* for May 23d states that when Janeway stated that "the dangerous increase in blood pressure from digitalis, as used in human beings, is a superstition without any basis of clinical fact," he confirmed the observations of numerous clinicians, among whom are leading authorities. Even in cases of deficient compensation, digitalis has been found to increase the arterial tension in but a small proportion of cases, while in the rest it either fails to produce any effect in this direction, or actually causes a fall. A close analysis indicates that digitalis should no longer, as taught in textbooks, be considered as contraindicated in systolic hypertensions, but conversely as tending actually to lower the diastolic pressure. This action is associated with dilatation of the renal vessels, which is considered partly responsible for the diuretic action of the drug. The clinical application of this newer conception of the action of digitalis was recently revised by Martinet (*Presse Medicale*), who not only confirmed the observations of others, but found that, judiciously employed, it could be used in a large proportion of cases to lower the blood pressure. An essential feature emphasized by this author is that small doses should be given for this purpose, viz., one-tenth to one-quarter of a milligram (1/600 to 1/240 grain) of French digitalin (which consists chiefly if not wholly of digitoxin), or fifteen minims of digalen. In 10 cases of angina pectoris closely observed, the intermittent use (ten days followed by rest of ten to twenty days) of either of these agents, lowered invariably the diastolic pressure, and of 10 the systolic pressure, decreased the number of paroxysms, or caused them to cease, and led to a retrocession of effort dyspnea. Fiessinger also reported similar observations, and benefit was also observed in cases of hypertension due to cardiorenal sclerosis, the periods of rest in the use of the drug here being reduced to four or more days. In aortic insufficiency very small doses given during prolonged periods not only aided but reduced the liability to attacks of angina pectoris. Riesman also recommends it where it was formerly thought contraindicated, viz., hypertension hypertrophy of the heart with rest as adjuvant.

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**Pertussis:** Edwin E. Graham, in the September number of *Merck's Archives* (from *Archives of Pediatrics*), asserts that the treatment of pertussis is one which has always absorbed a large degree of medical attention, and the newer methods to which he calls attention are: quinin given intravenously and intramuscularly, adrenalin suggestion, and vaccine treatment. He impressed the need of quarantine, continued till the end of the spasmodic stage. Local applications to the nasopharynx, if made early in the disease, during the first two weeks, may be of decided value. They are of assistance only when the infection is localized in the upper air passages, as in rhinitis and pharyngitis. At this period, an application of two per cent silver nitrate solution to the nasopharynx may, by destroying some of the specific pertussis bacilli, and by producing death of the superficial membrane, tend to prevent the

spread of the infection to the deeper respiratory passages. Ochsenius has recently reported 107 children so treated, with improvement in 84 of them. He makes the application every second day and claims that after eight of the treatments the number of paroxysms is slightly diminished, and by the third or fourth week the improvement is marked. He lays special stress on the importance of using the silver nitrate solution early in the disease. Phenol in one per cent solution has also been used successfully as a local application in the same manner. Among the drugs generally employed by inhalation are creosote and carbolic acid. They act as a sedative to the inflamed mucous membranes, and to some degree as a local antiseptic. As children are especially susceptible to carbolic acid poisoning, the urine must be closely watched. The medicinal treatment may be divided into two parts: First, drugs or other methods that *per se* have a tendency to lessen the number and severity of the paroxysms. Second, drugs or other methods directed to the treatment of the complications of pertussis. Among those of the first class he mentions belladonna, of which he prefers the tincture. Antipyrin, while of value, he has never used in the frequent doses so often advised. He prefers a single dose of two or three grains at bedtime, or morning and night to a child two years old. He also mentions the usual sedatives and calls attention to a combination of quinin, two parts, veronal, one part, successfully used by Winternitz of Vienna. Improvement followed in 26 out of 30 children, but it acts only as long as given, and is not a cure. The dose for a child of two years was veronal one-half grain, quinin one grain, three or four times a day. Lentzman secured very prompt and positive results from five grain doses of quinin injected intravenously every second day. He claims that all paroxysms rapidly disappear, and that the treatment acts like a charm. The intramuscular injection acts favorably but not as promptly or satisfactorily as when used intravenously. Adrenalin is strongly advised by Fletcher, and others have also reported favorably as to its use. Two or three drops of 1/1000 solution, given by the mouth every two or three hours. He advises the use of the combined vaccines in treating severe cases of pertussis, but the final verdict as to its efficiency can only be decided by additional evidence.

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**Psychanalysis and Psychoses.**—James J. Putnam, Boston (*Journal A. M. A.*, November 28, 1914), considers psychanalysis an educational method of high value that can probably be utilized to good effect in the therapeutics of psychoses and psychoneuroses. Psychologically considered, he says, these are not to be regarded as mere misfortunes or accidents, but as phenomena that represent definite and instinctive attempts at mental readjustment under special stress by those whose powers have been found to be inadequate to the task of restoring their mental equilibrium. Laying aside somatic influences that may be present, the principle that the psychoses and neuropsychoses come to existence because they serve a purpose needs to be recognized in our efforts for the prevention of insanity. It is important that the physician should understand the inner life of his patients as much as possible, so far as the psychoses are of mental origin. The fact that psychoanalysis is a method that may be harmful in certain cases is recognized by Putnam, but this does not, he holds, affect the general value. He dwells on the importance of encouraging the feeling in children that they are not living entirely to themselves; to encourage the social sentiment in education. The best man or child is not a single individual; he is a member of a community or series of communities to which his loyalty is due. He is not wedded to any one plan of education, however, but the one chosen should encourage a rational self-scrutiny with the development of character and one that is destructive of the morbid self-scrutiny that is so often a sign of a neurotic predisposition.



## NEW AND NONOFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies, 1914, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Slee's Normal Horse Serum.—Marketed in vials containing 100 Cc. Abbott Alkaloidal Company, Chicago.

Diphtheria Antitoxin.—Marketed in packages of 10,000 units ready for use. Memorial Institute for Infectious Diseases, Chicago.

Concentrated Diphtheritic Antitoxin.—Marketed in syringe packages containing from 500 to 7,500 units. F. Stearns & Co., Detroit, Mich.

Bacillus Coli Communis Vaccine.—Marketed in boxes of 6 ampoules. E. R. Squibb & Sons, New York City.

Staphylo-Acne Vaccine.—Marketed in boxes of 6 ampoules. E. R. Squibb & Sons, New York City (*Jour. A. M. A.*, Nov. 14, 1914, p. 1763).

Pyocyaneus Vaccine.—Marketed in boxes of 6 ampoules. E. R. Squibb & Sons, New York City.

Streptococcus Vaccine.—Marketed in boxes of 6 ampoules. E. R. Squibb & Sons, New York City.

Friable Tablets of Emetin Hydrochlorid. Mulford.—Each tablet contains emetin hydrochlorid 0.032 Gm. H. K. Mulford Co., Philadelphia, Pa.

Antirabic Vaccine.—Consisting of eighteen doses, one dose is sent by mail daily. Pasteur Institute of St. Louis, St. Louis, Mo.

Typhoid Vaccine, Immunizing.—Marketed in packages of three syringes and in packages of three ampoules. H. M. Alexander & Co., Marietta, Pa. (*Jour. A. M. A.*, Nov. 28, 1914, p. 1953).

During November the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official remedies:

Antiseptic Supply Co.:

Cupric Applicators; Cupric Applicators, Special; Caustic Applicators, Special; Styptic Applicators, Special (accepted for the appendix to N. N. R.)

Laboratory of W. T. McDougall:

Pasteur Antirabic Vaccine.

H. K. Mulford Co.:

Solution Pituitary Extract.

Radium Company of America:

Radium Bromid, Radium Chlorid, Radium Sulphate.

Standard Chemical Company:

Radium Carbonate.

Clinical Evidence.—In view of the unsatisfactory evidence for the therapeutic value of articles proposed for inclusion with New and Non-official Remedies, the Council adopted the following statement:

"Claims are often made, however, which are incompatible with common experience and sometimes defy the laws of Nature. Claims which seem highly improbable will not be admitted by the Council unless the manufacturer supports them by evidence acceptable to the Council. In doubtful cases the Council acts on these questions under the advice, and with the co-operation, of its staff of clinical consultants."

Change of Formula.—In view of information received from the Antiseptic Supply Company the Council has modified the description of Cupricsticks to indicate that these are tipped with a mixture of copper sulphate, alum and potassium nitrate, containing 20-25 per cent of copper sulphate.

Pituitary Liquid.—Armour & Company have informed the Council that its Pituitary Liquid is adjusted to uniform strength by the method of G. B. Roth (*Jour. of Pharm. and Exper. Thera.*, July, 1914). The description of Pituitary Liquid, Armour, has been revised to indicate this.

## The Academy of Medicine of Cleveland

### ACADEMY MEETING

The one hundred and fourteenth regular meeting of the Academy was held Friday evening, November 20, at the Cleveland Medical Library, with the President, J. J. Thomas, in the chair.

Prior to the presentation of the program proper, the stand which the Academy shall take on a measure soon to be considered by City Council, providing for the compulsory pasteurization of all milk, was discussed by various members, and a committee appointed to consider the matter in detail. The committee was further instructed to communicate the views which it reached to the City Council.

William H. Park, one of the guests of the evening, in discussion, said that the Department of Health of New York City, with which he is connected, several years ago tried to clean up the milk supply of the city without pasteurization. The attempt was made to secure clean raw milk. After a thorough test, the department abandoned the attempt as unfeasible. The large amount of tuberculosis in children which can be traced to infection from the milk of tuberculous cattle, the dangers of the contamination of milk from typhoid carriers and various other sources, preclude any attempt to secure a clean raw milk.

Pasteurization of all milk was then hit upon by the department as the solution of the problem. This included milk from all sources, except that of the highest quality, such as is furnished by certified dairies, and which is known as certified milk. The method was adopted and has been in vogue in New York for the past six months. Milk dealers generally, fell into line with the purpose of the measure. Following adoption of the method there was no increase in the incidence of scurvy or rickets. The people, generally, were satisfied with the measure.

To be assured of a pure milk supply, any city of the size of New York or Cleveland, must adopt pasteurization. The wide area from which the supply is obtained makes this imperative.

Immediately preceding the program proper, C. E. Follansbee presented a specimen, consisting of an entire lower extremity, resected at the hip joint.

The patient, a man 46, farmer by occupation, with an absolutely negative family history, fell through the ice while skating, when a boy, suffering an injury to his knee. At that time he stayed in bed for a day, then got up and walked around for two days. At the end of this time the pain became so severe that he was obliged to go back to bed, remaining there for three years. Shortly after he took to his bed the knee and ankle both suppurated. Then his thigh swelled and the glands in the groin suppurated. At the end of his three-year period in bed, the knee was opened and curretted. He was then able to get up on crutches, and he was obliged to use these for the next five years. At the end of that time he was able to walk alone and returned to his work. Six years ago the patient weighed 200 pounds. At that time his health failed, and when he came under observation, the middle of October, he weighed 135 pounds. His temperature at that time was 102, and his pulse showed greatly increased rate. His appetite was poor, his urine was filled with casts, and he had a severe diarrhea. On November 6 he was operated on, a hip joint amputation being done. The stump healed by primary union. On pathological examination the tissues of the removed leg showed no tendency to cancer formation but showed a chronic inflammation.

The program was as follows:

1. Serum Treatment of Tetanus and Diphtheria and Active Immunization Against Diphtheria, by William H. Park, New York City.

The purpose of giving antitoxin in diphtheria and tetanus is to neutralize the toxins produced by the micro-organisms which cause



these diseases. The antitoxin plays no part in repairing the damage done or in assisting the cells damaged by the toxin. The principle in the use of antitoxin is the same as that in the use of water to put out fire.

The toxins in the case of diphtheria are localized largely in the tissues which are the seat of the inflammation, as demonstrated by the local changes which occur there. A certain amount of the toxin passes to the lymph channels, thence to the blood stream, and from thence to the body cells. It is of interest to measure the amount of toxin in the blood. This has been found to be relatively slight in amount. A few units of antitoxin will take care of the toxin present there. Thus, the dose must be graduated with the end in view to neutralize the toxins in the tissues.

It is indifferent whether the case of diphtheria is malignant or mild, the amount of toxin in the blood remains the same. If we wish to give antitoxin to neutralize the antitoxin, why not give it in a single dose, rather than in repeated doses? When antitoxin is injected subcutaneously, the swelling at the site of injection disappears in the course of half an hour. However, only the water contained in the injection has been absorbed, the antitoxin still remaining at the end of that time at the site of injection. Within 24 hours, only one-half to three-fourth has been absorbed. The absorption of antitoxin, as a matter of fact, is not complete until the fourth day after injection, despite the fact that the amount present in the blood has begun to decline by that time.

The usual way to administer antitoxin has been to give the first dose, follow this, in the course of 12 to 18 hours, with a second, if the local symptoms were not subsiding, and in some cases to follow the second dose with a third, if the indications were suggestive. The correct method of administration is to give only one dose.

By use of the Shick test it can be determined whether the body contains any diphtheria antitoxin. If, into a body containing no antitoxin, we inject diphtheria toxin and then within six hours inject antitoxin into the same site, the antitoxin will neutralize the toxin and symptoms will not develop. By the end of 12 hours the antitoxin will have reached all parts of the body. This we can prove by again injecting toxin into the original site.

If we insist on administering the antitoxin in divided doses we simply postpone the time when we shall get an adequate amount of the antitoxin into the blood. Results obtained from the second and third doses, when the system of divided administration is employed, are really but late effects from the initial dose. The conclusion which has been reached, in this regard, is based on a large number of cases, treated some with the repeated doses, others with a single dose, by the New York Department of Health.

Results further show that intravenous injection is far better than subcutaneous injection. The antitoxin is much sooner absorbed. The early effect of intravenous injection is ten times greater than that obtained from subcutaneous administration. Smaller doses of the antitoxin intravenously give the same result as large doses subcutaneously, since they become diffused much more rapidly through the blood. The mortality in both methods is practically the same, but improvement in the condition of the patient is noted much sooner with intravenous administration. Thus the intravenous method of administration is especially good in septic cases.

For fifty years cases have been described in which injections of serum have been made into the spinal canal or ventricles of the brain. However, in the case of tetanus, injections of serum have generally been made intravenously. With guinea pigs it has been found that animals which had been given fatal doses of tetanus and which, after they had shown some stiffness for three or four days, were treated, some with intraspinal injections of serum, and others with subcutaneous injections, show widely different rates of mortality. Without exception, the animals which were treated by subcutaneous injections died. The results obtained were much better when intraspinal injections were used, many of the animals

recovering. Some guinea pigs suffering with tetanus were also given intracardial injections. Most of these animals died.

Eleven human cases of tetanus have been treated by the speaker, using combined intraspinal and intravenous injections. Several days after administration of the initial doses, a second injection was given intraspinally, and in some cases also a second injection intravenously. Out of the 11 cases, 9 recoveries were recorded. This, in spite of the fact that many of the cases were of a severe grade, and that there was in some of the cases setting of the jaws, rigor and in some cases convulsions, before administration of the injections.

For some years it has been known that a mixture of diphtheria toxin to which sufficient antitoxin has been added to neutralize it, when injected into the body, served to stimulate the formation of antibodies by that body. Thus such immunization developed in horses lasts for a period of one to two years. Curiously enough, rabbits under this method fail to develop any immunity. Theobald Smith, some six years ago, suggested the possible immunization of children by this method. The method was tried by the New York Health Department two years ago, the mixture used containing only enough excess toxin, over the amount of antitoxin present, to call forth a slight reaction. An attempt was made to immunize children in scarlet fever wards, where diphtheria carriers developed. Cases used were tested both before and after administration of the mixture. It was found that children who had previously been given antitoxin produced antibodies, while those who had not, did not produce any. Eighty per cent of adults have immunity to diphtheria, as has also the same per cent of babies. How is this immunity produced? The question is an open one.

H. J. Gerstenberger, in opening the discussion, expressed interest in the different modes of giving diphtheria antitoxin. A single dose is advocated in the administration of diphtheria antitoxin. In tetanus, however, two injections are given. How shall the dose of diphtheria antitoxin be gauged for the individual child, or does the speaker advocate the administration of an average dose in all cases? The clinical manifestations may not be proportional to the amount of toxin present.

R. G. Perkins, in discussion, called attention to the results obtained from the Shick test, now in use in the Cleveland City Laboratory. In 80 cases, recently investigated, which showed negative Shicks, attempts to produce active immunity were followed by only 4 positive reactions.

A. F. Furrer asked whether the speaker had any advice as to the procedure in the case of carriers.

F. E. Bunts called attention to the uniformly bad outcome, hitherto, in the treatment of cases of tetanus. The treatment described by the speaker must be given early to be effective. What dosage does the speaker use, and what is his view relative to prophylaxis? Injection of tetanus antitoxin, subcutaneously, after development of the symptoms is useless.

H. L. Sanford said that the only case of tetanus which he had ever seen recover at Lakeside Hospital had been treated by intraspinal injections.

W. H. Park, in closing, emphasized that an adequate single dose of antitoxin should be given in cases of diphtheria. However, if practitioners have not sufficient confidence in the method or the courage to carry it out, they can give additional doses without harm to the patient. The amount of toxin present is very small in any case. The number of units ordinarily given is far in excess of the amount actually needed to neutralize the toxins. With the administration of 10,000 units subcutaneously, enough antitoxin is absorbed within a few hours to neutralize all of the toxins. Intravenous administration works more quickly, and is the best method, since every minute counts in such cases. The clinical symptoms do not subside immediately because of the damage already done



before absorption of the antitoxin. In the ordinary case 10,000 units should be administered. In the malignant case 20,000 units.

The tetanus toxin passes up the nerves and injures the cells. The question is how to get the antitoxin to it. The spinal fluid even in immunized horses contains scarcely any antibodies. The question is, does the antitoxin travel better by the blood or by way of the spinal canal? Apparently, through the spinal canal. From thence it gets into the lymph channels and thence to the cells. The second intraspinal injection may help. The second intravenous injection is given largely for its moral effect.

The dangers of the administration of a second dose of antitoxin are grossly exaggerated, except in cases in which the injection is made too rapidly. If the patient withstands the primary dose without developing alarming symptoms, the danger from the second dose is practically nil, if the injection is made slowly enough.

Relative to carriers, the best treatment is to put their throats and noses into good condition by local hygienic treatment. It is a well known fact that the organisms in carriers are not as virulent as those in individuals actually suffering with the disease.

Passive immunization in tetanus lasts only for about ten days. The horse serum constitutes a foreign element when injected into the human and is rapidly eliminated. After development of the symptoms, it is important that cases be treated early. Doctor Park's paper will be published in a later issue of the *Journal*.

## **2. The Clinical Diagnosis of Hydronephrosis, by W. F. Braasch, Rochester, Minnesota.**

The term hydronephrosis means dilatation of the renal pelvis from obstruction to the flow of urine, from some mechanical source. The condition is one which is often overlooked, as evidenced by the fact that of 116 cases operated at the Mayo Clinic, 44 per cent had had their appendices removed elsewhere without the true condition being discovered.

Under classification the condition falls naturally into two types, congenital and acquired. It is with the first of these that the paper deals. Congenital hydronephrosis rests on some anatomical basis. It constitutes a clinical entity, without local symptoms of diagnostic value. Three points, however, generally connected with the condition are of value. It occurs usually in early adult life, it is characterized by periodicity of attacks, and it often occurs without any disturbance in the function of urination.

The majority of the patients treated by the speaker were under 21 years of age. It is common for symptoms to develop at the time that full growth is attained. The attacks become more frequent as the symptoms progress. Dull pain develops only late. Pain referred to the upper lateral abdomen, recurring, without urinary disturbances, either increased frequency or hematuria, should make one think of hydronephrosis. Pain recurs regularly, especially at first.

Of the signs, demonstration of a tumor, cystic and soft, in the upper lateral abdomen, was possible in only 32 of the speaker's cases. Tumors of the surrounding organs may well simulate it. Since the kidneys may be situated high up, or the amount of perirenal fat may be great, even a large tumor may not be demonstrable. A large kidney may also simulate such a tumor.

The data obtainable in such cases is uncertain. Only occasionally are the three cardinal symptoms obtainable. Diagnosis is in the province of the technician, and can be made only by the cystoscope. By inspection, in advanced cases, we may find that the urinary secretion is diminished in the effected kidney. The other methods employed in diagnosis are, the use of the urethral catheter, the over-distention method, and pyelography.

In using the urethral catheter in such cases we may meet with an obstruction in the ureter, high up, and when we pass it several ounces of

urine may spurt out. In such an event, remember the possibility of nervous hypersecretion. When the catheter is inserted in such cases the urine may flow rapidly, however, in such a case, the phenomenon will be bilateral. With a syringe attached to the end of the catheter, one ounce of urine can be withdrawn frequently, in such cases.

In the over-distention method of Kelly, the pelvis of the kidney is over-distended with fluid and the amount of fluid used is measured. The pelvis normally holds 5 to 10 c.c., and when more than this amount is injected it causes pain. Even 15, 20 or 25 c.c. may be the normal pelvis capacity. However, if it takes 30 c.c. the condition is certainly pathological. If the pain which the patient experiences on over-distention is likened by him to the pain which he suffered previously in the attacks, that fact is significant.

In pyelography collargol is injected into the pelvis of the kidney and into the ureter and an X-ray of these structures is then taken. Owing to the dangers of the method it should be used only as the last resort in diagnosis, and then only by men skilled in the use of the method. The method is especially valuable for the diagnosis of early hydronephrosis. It can be seen on X-ray that there is flattening, broadening and enlargement of the calyces, shortening of the minor calyces, and increase in the size of the true pelvis. If in doubt as to the positiveness of the radiograph, compare it with one taken on the other side of the same patient, since the condition is generally only unilateral. The course of the normal ureter is variable. With a low-lying kidney it enters the pelvis by a circuitous route. Anonymous insertion of the ureter, with dilatation of the kidney pelvis, is corroborative. Pyelography is counterindicated in the case of large hydronephromas, since the collargol cannot drain out properly. Prompt drainage after injection is an essential and neglect to see to this has caused fatalities.

Pyelography is further valuable, since it demonstrates whether the obstruction is in the upper or lower part of the ureter, and a knowledge of this modifies the site of the incision. It also shows if the inflammation is primary or secondary, whether due to constriction by an anonymous renal vessel or due to abnormal position of the kidney. Pyriform dilatation of the kidney practically always points to the existence of an anonymous blood vessel. That this latter is an important etiological factor is shown by the fact that it occurred in 61 per cent of the cases.

Differentiation of a bleeding hydronephroma from a bleeding malignant growth is often extremely difficult. In severe cases of hydronephroma the parenchyma of the kidney is found to be much atrophied. In some cases the large size of the growth brings the patient to the physician.

Shrinkage of the sac-like pelvis to normal proportions is noted in time in cases which have been operated and the obstruction removed before dilatation has become extreme. In 72 per cent of the speaker's 116 cases, nephrectomy was done. In hydronephromas with a capacity of five to six ounces, a plastic operation is not followed by good results.

F. C. Herrick, in opening the discussion, laid stress on the slow going and insidious nature of the development of the condition. Accessory blood vessels are a strong factor in the development of the condition. The differential diagnosis of the condition from appendicitis is important.

W. E. Lower emphasized one method of differentiating hydronephroma from appendicitis, which consists of thumping percussion with the patient bending over. If it is a hydronephroma, the patient will complain of tenderness of the affected side.

The absence of urinary symptoms is another important point in diagnosis of the condition. The amount of urine which may be retained in the kidney pelvis is also important.

There is distinct danger attending collargol injection. It would be an advantage, if another solution could be employed. If used, it should be drained out immediately after the X-ray has been taken.



The frequency of abberant blood vessels in the causation of hydro-nephrosis cannot be exaggerated. The procedure in such cases is simply to divide the offending blood vessels and tie them. When so treated there is no post-operative trouble with kidney function.

Gastric symptoms frequently accompany such cases. Thus, there may be a marked tendency to gas formation.

H. L. Sanford asked whether the speaker had made use of the kidney function test in his cases? Also, whether there is a difference in the amount of drug elimination from the affected and the sound kidney. Further, does the method of dividing the blood vessels remove the possibility of subsequent pain at that site?

C. L. Graber said that he had operated hydronephroma for appendicitis. Emphasis should be laid on the danger of collargol injections. One patient whom he had, who had only a small dilatation, after injection was confined to bed for three weeks, with a high temperature, and suffered extreme pain. The method has been abandoned in the Allgemeine Krankenhaus, on account of its dangers.

W. F. Braasch, in closing, said that pyelography should be employed only when diagnosis by other methods is impossible. Even then it should only be employed by skilled men. No deaths occur when the kidney pelvis and ureter are injected by the gravity method, then drained promptly, or if this is impossible the case should be operated immediately, since such a case is surgical at any event, and immediate operation merely applies the ultimate remedy sooner. The whole procedure of pyelography should be systematized. Thus, the collargol should not be injected until just before the X-ray is to be taken. The X-ray should be taken immediately and the kidney pelvis and ureter then drained. When a catheter is introduced into the ureter, the patient may suffer from colic for weeks. In that event the pain may be so severe that morphin will have to be administered.

Movable kidneys is the cause of hydronephroma in only a very small percentage of cases. Kidney function tests are valuable in various kidney conditions, hydronephroma included, but the other methods described are simpler. Also, kidney function tests do not tell anything as to the amount of destruction in the kidney. The retained fluid which runs out may contain very little pthalein. The kidney from the function test may seem to be in bad condition. On the other hand, the test may be normal and the kidney at the same time in bad condition.

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## EXPERIMENTAL MEDICINE SECTION

The seventy-sixth regular meeting of this section was held Friday, November 13, 1914, at the Cleveland Medical Library, the Chairman, David Marine in the chair. The program follows:

### 1. The Possible Existence of Secretory Nerve Fibers to the Kidney, by R. G. Pearce.

It has been shown by various workers that the renal epithelium receives nerve fibers. The vagus supplies nerve fibers to the kidney via the coeliac plexus. These may be secretory. The unimportance of the part played by the nervous mechanism in renal secretion has always been emphasized, for the reason that the kidney can be transplanted, after which it will still secrete normal urine.

It is possible that even as in the heart, stomach, and secretory glands, an antagonistic action exists between the vagus and the sympathetic, so also does such a mechanism exist in the kidney. In research work on the kidney, the striking results on the blood pressure obtained by stimulating the nerves has been so marked that the effect of a possible nervous mechanism on the renal secretion has been overlooked.

In the present series of experiments an attempt was made to remove these blood pressure effects. Cats were used and the brain stem was

severed at the level of the peduncles. The left kidney was denervated. The left splanchnic nerve was severed, as was also the vagus on both sides at the neck. Artificial respiration was provided. The blood pressure of the animals in some cases was good and the secretion of urine normal. In others an infusion of saline, under pressure, was injected constantly, care being taken that the process proceeded very slowly. Urine was collected from both kidneys at periods of ten minutes each, the vagus being alternately stimulated. The amount of urine secured from each kidney during each period was taken as the index of kidney function. The output of the experimental kidney was compared to that of the denervated kidney.

The logical criticism to the above experiments is that after severing the splanchnic nerve, stimulation of the vagus might cause an increased blood flow through the kidney, thus accounting for any diuresis. Several observers say on this point that there is no change in the blood flow through the kidney on vagus stimulation, as measured by kidney volume. Also, the dilator fibers of the vagus might cause the result after loss of splanchnic tone.

As a result of the present experiments it was found that the experimental kidney showed a marked increased output of urine over the denervated kidney, upon vagus stimulation. The success attained in the experiments was due to the fact that the left splanchnic nerve had previously been severed. The reason for this is not clear. It is probably due to the fact that the left splanchnic transmits constant vaso-constrictor impulses to the kidney. The nerve, according to some observers, seems to contain actual inhibitory fibers to the kidney.

To check up the results of the experiments further work was done to substantiate, if possible, the existence of secretory fibers in the vagus. The left vagus and splanchnic nerves were severed and the right kidney severed from all nerve connection. Three days afterward it was found that with a falling blood pressure, while the denervated kidney showed diminished output, the experimental kidney, on vagus stimulation, show an actual increase in output. This was due, probably, to the fact that the cardiac fibers of the vagus degenerate earlier than the secretory fibers.

To estimate the blood flow through the kidney two methods were employed. In the first, the oncometer was used to show possible changes in kidney volume. Results with this method were negative. However, there may be an increase in renal outflow without change in kidney volume. With other experiments it was uniformly found that stimulation of the vagus was attended by no increase in blood flow.

Results on the series of experiments as a whole tend to show that while stimulation of the vagus has no effect on blood flow through the kidney, it is accompanied by marked increase in the amount of urine secreted.

(This paper appears in full in this issue of the *Journal*.)

## **2. Control of the Blood Flow Through the Kidney, by J. J. R. Macleod and R. G. Pearce.**

The liver has a double blood supply, venous and arterial. The blood contained in the hepatic artery is under high pressure. That within the portal vein is under low pressure. To prevent a backflow, it is essential that the pressure within the hepatic artery be reduced to that within the portal vein. Venules of the portal system can dilate and constrict to a small extent. There must be a great obstruction to the hepatic flow. The hepatic artery, it is suggested, has a compensatory mechanism, by means of which the flow through the hepatic artery is increased, when the volume of the portal flow is small.

The present experiments demonstrated that the average combined flow of the two vessels, at the beginning of the experiment, was 6.5 c.c. of blood per second. This, calculated per 100 gms. of liver substance, gives 1.06 to 2.4 c.c. per second, these being the variations.



The magnitude of the outflow from either vessel, the other being clamped, was then determined, to show, as near as possible, the amount of the contribution of each to the hepatic circulation. It was found that the hepatic artery furnishes approximately 33 per cent and the portal vein approximately 66 per cent of the blood within the liver. These experiments show why metabolism is not more seriously interfered with in conditions where the portal vein is occluded. The hepatic artery is commonly thought of as a relatively unimportant factor in hepatic circulation.

Stimulation of the hepatic plexus was found to cause immediate acceleration of the blood flow through the liver, which quickly returned to normal. The flow increased from 5.8 c.c. per second, before the experiment, to 9.7 c.c. after stimulation of the plexus. The increase is explained by the quick squeezing out of blood from the liver, due to vaso-constriction of the hepatic arterioles. There follows a quick return to normal. Then follows an increase in flow through the portal vein. The venules of the portal vein open up passively, due to decrease of tension in the arterioles and Glisson's capsule. Burton Opitz found that the hepatic arterioles dilate when the flow through the portal vein is cut off.

The action of adrenalin in dilute solution on the outflow from the liver was then studied. Injected into the portal vein it caused a decrease in the outflow. Diminution in outflow was more marked when the hepatic artery was intact than when it was ligated.

C. F. Hoover, in opening the discussion, called attention to the fact suggested by the experiments that lowering of arterial pressure caused an increase in the venous pressure. This observation is opposed to observations on hypertonus and the effect on Glisson's capsule. Thus, when there is no evidence of stasis to cause increase in the size of the liver, relieving the hypertonus caused decrease in size. Heightening of pressure in the hepatic artery seemed to increase the flow through the portal vein.

F. C. Herrick asked whether shock had entered into the experiments.

J. J. R. Macleod said that the blood pressure in the experiments had remained constant. After determining the normal flow through the vessels, the hepatic plexus was stimulated, with the result that the blood flow increased, only to return quickly to normal. The return to normal was due either to a let up in the vaso-constrictor action on the hepatic artery, or to dilatation of the normal capillaries. Let up of the vaso-constriction in Glisson's capsule, due to fatigue, is not possible. When the hepatic plexus was stimulated the hepatic artery was constricted and yet the blood flow increased. Where does the blood come from? It may be that the spleen is the blood reservoir of the portal system. This may be one of the functions of the contractile mechanism of the spleen.

F. C. Herrick, in discussion, said that he had experimented with dead livers determining the volume flow through the different vessels. The circulations are going on in a soft expansile tissue. They are controlled to some extent by vaso-motor tone, but the effect which they exert on each other must also be considered. What changes occur when the expansibility of the liver is changed? For example, when the liver becomes cirrhotic and more rigid? The speaker said that he had found that a normal liver will increase in volume two or three times with increase in pressure while a cirrhotic liver will show scarcely no increase in volume.

David Marine pointed out that Glisson's capsule is only slightly developed in man and in the dog. The structure is very well developed in pigs, however, and their livers are quite cirrhotic. Experiments conducted on pigs might be interesting.

(This paper appears in full in this issue of the *Journal*.)

**3. Evidence that in Experimental Diabetes Glycogen may be Transformed into Other Substances than Dextrose, by J. J. R. Macleod and A. W. Wedd.**

The teaching of Claude Bernard that all glycogen is converted into sugar is true of the normal liver, but not of the liver under abnormal conditions; for example, in experimental diabetes. To prove that not all glycogen is converted into sugar we can check the amount of sugar released from the liver and the sugar which accumulates in the blood in a given time. If there is more glycogen than sugar, then some of the glycogen must have been transformed into other products. Technical reasons, however, forbid our obtaining such evidence.

In phosphorous poisoning in animals, glycogen disappears from the liver without any consequent piling up of sugar in the blood. The same is true of some forms of ether and chloroform poisoning. Also occurs after injection of thyroid extract into rats.

We may rely on a qualitative search for unknowns in the blood. What may these be? They may be dextrin, thrown into the blood in a half hydrolyzed condition or lactic acid. To search for these substances histological evidence must be relied on.

From experiments conducted by the speaker there is some evidence that dextrin is thrown into the blood. The livers of normal and experimental animals were stained with carmine for glycogen. Rabbits were the animals used. The normal rabbit liver seems packed with glycogen. The liver of the half starved animal shows this gone. In sections from the liver of a diabetic animal glycogen is shown excreted from the lobule, leaving the part that remains irregularly distributed through the lobule. In addition, under high power it is seen that there is red staining glycogen in the blood vessels. This is never seen normally. If conclusions from the above experiments are valid, glycogen or dextrin can be present in the blood which leaves the liver. This being the case, it is explained why there is more sugar in the blood in the carotid artery than in that of the portal vein. Much in the portal system may be dextrin which by ferment action becomes converted into sugar before it reaches the carotid artery.

In the search for lactic acid much blood was collected from large dogs opposite the vena cava, under normal and under abnormal conditions causing a large discharge of glycogen from the liver. Absolutely no lactic acid was found. Then the portal vein was clamped for from two to five minutes, producing an internal asphyxia. At the end of this time lactic acid was found. Present research, however, does not show that this comes from glycogen. The only conclusion justifiable is that it may come from glycogen.

(This paper will appear in full in this issue of the *Journal*.)

**4. Demonstration of a Method Showing the Reliability of the Auscultatory Method for Measuring the Pressure Pulse, by L. L. Belt and J. R. Driver.**

## THE OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The seventy-fifth regular meeting of the Section was held Friday evening, November 27th, at the Cleveland Medical Library.

In the absence of the chairman, Doctor W. E. Brunner presided.

R. B. Metz presented a case of scleritis in a woman of 56. There had been recurrent attacks since she was ten years old. There is an annular dark area around the cornea, the limbus is stretched, producing a very deep anterior chamber. Diffuse corneal opacities. Annular posterior synechiae. Iris atrophic. Diagnosis—Tuberculous scleritis.

### Program

**1. Preliminary Capsulotomy in Cataract Operation, by Edward Lauder.**

*First Case.* Capsulotomy followed by severe attack of glaucoma. Pain so severe that opiate was required. Next morning extraction, fol-



lowed by iritis. Results nil. Eye never had any improvement in vision.

*Second Case.* Preliminary iridectomy. One month later capsulotomy in morning. Followed by mild glaucomatous symptoms. Extraction in afternoon—good result.

*Third Case.* Preliminary iridectomy. Two months later capsulotomy in morning. Impossible to cut capsule. Extraction in afternoon, with capsulotomy just as though no previous capsulotomy had been done. Good result.

R. B. Metz reported a case—Capsulotomy followed by loss of anterior chamber. Next morning small incision in only possible area of anterior chamber. Incision enlarged with scissors and extraction. Good result.

W. E. Bruner reported three cases.

*First Case.* Preliminary iridectomy in immature cataract. Later since cataract did not mature, capsulotomy. No reaction. Next day extraction, using capsule forceps. Irrigation still left considerable cortex. Good recovery. No secondary. Vision 6/5.

*Second Case.* Immature cataract, preliminary iridectomy. Later capsulotomy. Could not cut capsule but entered lens and stirred up cortex. Next day extraction, using capsule forceps. No reaction. Considerable cortex left. Will probably require secondary dissection.

*Third Case.* Preliminary iridectomy. Later capsulotomy. Slight reaction. Next morning extraction and irrigation. Clear pupil. Good view of fundus.

W. H. Tuckerman asked whether in case of immature cataract this method had any advantage over the old method of extraction.

Edward Lauder thinks there is no advantage in this method.

W. E. Bruner thinks that it hastens clearing up.

## **2. Eye Clinics of Budapest, Berne and Zurich, by C. C. Stuart.**

C. C. Stuart gave an informal talk on the work of these clinics and presented various instruments used in operations there.

## **3. Report of a Case of Epidural Abscess of Otitic Origin, by M. Metzenbaum.**

Presented patient, who two months ago had an attack of influenza, followed by discharge from ear. Fever and discharge ceased. Sudden rise in temperature to 105°—pulse 96. No sign of mastoid involvement. No nystagmus. Chill—temperature 106°. Operation. Slight involvement of mastoid. No fistula—opening made through tegmen. Pus encountered. Drainage. Recovery in four weeks. Hearing normal. Only symptom now is a persistent tinnitus.

## **4. Progressive Amblyopia Due to Purulent Sphenoiditis; Operation, Recovery, by D. A. Prendergast.**

Patient man age 30. Complaint, blurred vision in left eye, beginning three months before. History of headache of deep boring type, very severe at times. At times pain over left eye, radiating to vault of skull and occiput. No marked discharge from nose. Physical examination negative. External structure of eyes negative. Pupils normal. Vision: right eye 6/9; left eye 6/60. Fundus of right eye normal; of left eye, slight edema of nerve head. Fields of left eye showed well marked central scotoma and enlargement of blind spot.

Examination of nose: Moderate hypertrophy on right side. Left side marked hypertrophy of middle turbinate, mucous polypi extending into naso-pharynx. No pus. Naso-pharynx showed strings of thick mucus in region of sphenoid. X-ray showed involvement of left sphenoid. Middle turbinate removed, also anterior wall of sphenoid, which was filled with foul thick pus. Posterior wall absent, and soft structure of brain felt with probe. Operation followed by immediate relief of head-

aches and slow return of vision. After six months vision in left eye 6/12.

W. E. Bruner called attention to a communication in the November number of the Ohio Medical Journal, signed by the Secretary of the Academy, which stated that the Academy of Cleveland does not endorse the proposed bill entitled "An Act for Prevention of Blindness from 'Babies Sore Eyes.'"

Secretary was instructed to inform the Secretary of the Academy: firstly, that our section is of the opinion that it should have been consulted before such a statement was published; secondly, that our section *does* endorse the proposed bill; and, thirdly, that we request the Secretary of the Academy to publish the fact of our approval of this bill.

Election of officers for the year 1915 results as follows:

Doctor J. E. Cogan—Chairman.

Doctor W. H. Tuckerman—Secretary.

### COUNCIL MEETING

At a meeting of the Council of the Academy of Medicine, held Wednesday, December 9, 1914, at the Bismarck, the following members were present, the President, J. J. Thomas, in the chair; Doctors Kopfsstein, Houck, Storey, Marine, Weir, Sanford, Way, Follansbee, Spurney, Ford, Perkins, Updegraff, Selzer and J. E. Tuckerman. By invitation Mr. T. F. Hummell and Doctors Osborn, Placak and Moorehouse.

The minutes of the last meeting were read and approved.

An objection was raised to the election of H. F. Biggar unless there be placed on file with the Academy a signed statement showing that he has severed his connections with any organizations which foster an exclusive dogma or school. The objection was referred on motion to the Membership Committee.

Mr. Hummel presented a plan for group insurance and indemnity against malpractice for society members. The plan was referred to the Civic Committee for consideration and recommendation.

G. W. Moorehouse presented a plan for the establishment of a private tuberculosis sanitarium to be supervised in part by a joint committee of the Academy and other bodies interested in the tuberculosis problem. Doctor Updegraff moved that a committee be appointed by the chair to investigate and report to the Council. Carried.

On motion the application of Franklin F. Walter, M. D., was denied.

The following were elected to Active Membership: F. J. Gallagher, Paul J. Hanzlik, A. S. Jones, C. A. O'Connell.

A. C. McGannon asked for reinstatement as an active member. The Council directed that he be reinstated upon complying with the provisions of the Constitution and By-Laws.

On motion the following were transferred to active membership in the Academy: Desiderius Földes, from the Michigan State Medical Society; Angeline M. Lemon, from Montgomery County Medical Society, Pennsylvania; G. W. Moorehouse, from honorary membership to active, upon request.

On motion F. W. Vincent, of Baguio, P. I., was reinstated as a non-resident member of the Academy.

On motion of H. L. Sanford, the Council directed that no name for membership be presented to the Council for action until referred by the Membership Committee.

W. T. Howard presented his resignation from the Academy by letter. It was moved that the resignation be accepted and that Doctor Howard be elected to honorary membership. Carried.

On motion, H. D. Haskins was given a letter of recommendation and transfer to the Medical Society of Portland, Oregon.



The Secretary read the list of members dropped for non-payment of dues.

The financial report of the Secretary-Treasurer was read and received without comment.

The special committee on the pasteurization of commercial milk reported in favor of the ordinance. The Secretary was directed to so communicate to the Public Health Committee of the City Council.

City Ordinance No. 34649, to establish a dog pound and regulate and suppress stray dogs in the City of Cleveland, was presented to the Council. Doctor Way, of the Veterinary Section, said that the Veterinarians had already indorsed the measure. On motion, the ordinance was indorsed by the Council and the Secretary was directed to communicate their indorsement of the ordinance to the City Council.

On motion, the Medico-Legal Section was dropped.

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**Pyorrhea Alveolaris.**—The regular monthly meeting of the New Orleans Academy of Sciences was held in Stanley Thomas Hall, Tulane University, on Tuesday, October 20. President W. B. Gregory presided, with a large attendance of fellows and members. The president announced that during the summer a room had been furnished and equipped in the Stanley Thomas Hall for the library of the Academy. The paper of the evening was read by Doctor C. C. Bass, Professor of Experimental Medicine, on "Pyorrhea Alveolaris." The speaker said in part:

Pyorrhea alveolaris is almost a universal disease. It begins in childhood or early adult life in practically all people. It is usually unrecognized by the patient until one or more teeth get sore and loose in the socket. By a long suppuration process the peridental membrane, which holds the tooth in place is destroyed, and the tooth is lost. This process goes on from year to year and tooth after tooth is lost, until finally all are removed by the disease or by necessary dental operation.

The cause of the disease has been found to be *ameba buccalis*, which destroys the peridental membrane, separating the tooth first from its gum and later the alveolar process or bony socket.

Emetine hydrochlorine injected hypodermatically one-half grain daily for three or four days, destroys the demonstrable amebae in most cases, and great improvement and cure of mild or early disease results. The treatment should be repeated one or more times in most cases, however, after an interval of one to four weeks. All patients, and perhaps everybody, should apply ipecac to their normal or diseased gums by brushing the teeth once a day with a wet brush on which one or two drops of fluid extract of ipecac are placed. The ipecac (from which emetine is made) should prevent the disease and apparently may cure it where not deep seated.

There was considerable discussion of the paper, in which Doctors Belden, Wallace, Wood, Mann and others took part. A unanimous vote of thanks was accorded the speaker at the end of his interesting paper.—*Science.*

## BOOK REVIEWS

The Practical Medicine Series—Volume IV, Gynecology, edited by Emilius C. Dudley, A. M., M. D., Professor of Gynecology, Northwestern University Medical School; Gynecologist of St. Luke's and Wesley Hospitals, Chicago, and Herbert M. Stowe, M. D., Associate in Gynecology, Northwestern University Medical School; Attending Obstetrician to Cook County Hospital. Series 1914. The Year Book Publishers, Chicago. Price of this volume, \$1.35. Series of ten volumes, \$10.00.

This excellent little annual review of the literature of Gynecology is edited and printed and bound according to the same general plan as the other volumes of the series. The entire ten aim to cover the whole field of medicine and surgery.

The book before us is divided into seven parts, dealing respectively with "General Principles," "Menstrual Disorders," "Displacements and Injuries," "Infections and Allied Disorders," "Extra-Uterine Pregnancy," "Tumors," and "Sterility." This classification indicates that all subdivisions of Gynecology are well represented.

Progress during the past year is noted chiefly in two directions. First, we are coming to recognize more and more the influence of the so-called ductless glands upon the generative function. For example, the work of Schert upon the similarity of the blood pictures in metropathies and in hypothyroidism is most suggestive of a close association. In many places, the newer ideas of organotherapy and the effects of hormones are brought out.

Radiotherapy, with X-rays, mesothorium, and radium, forms the second most striking feature of the year's literature in Gynecology. It seems as though the first enthusiasm over radium has spent itself, and we are now taking a quieter and saner view of its possibilities. On page 208 is given a summary of the symposium held at Vienna this year upon the subject. Wertheim's belief, that cases responding to radium are cases that would respond to ordinary measures, is a view worthy of respect. This authority also believes that preceding radium exposures render more difficult the removal of the growth later.

The vague subject of the chorio-epitheliomata has had some light shed upon it the past year. On page 193, the work of Klotz is reviewed. This writer believes he can demonstrate transitional stages between teratomata and the chorio-epitheliomata. Other writers seem to have demonstrated a benign syncytial invasion of the uterine veins in pregnancy. This volume, like its older brothers, may be warmly recommended as an excellent brief digest of the year's literature in its special field.

J. T. S., Jr.

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A Treatise on Clinical Medicine—By William Hanna Thomson, M. D., LL. D., formerly Professor of Practice of Medicine and of Diseases of the Nervous System in the New York University Medical College; Ex-President of the New York Academy of Medicine, et cetera. Octavo volume of 687 pages. W. B. Saunders Company, Philadelphia and London, 1914. Price, cloth, \$5.00 Half Morocco, \$6.50.

It was apparently not the design of the author to write a comprehensive text book. No sections on pathology are given. In fact, the clinical features of the various diseases are not considered systematically. Some knowledge of the subject on the part of the reader is assumed, and the author's individual experiences and opinions are presented. Some minor subjects are mentioned simply to bring out some point which apparently has been impressed upon the author in his own experiences. Philosophical dissertations are indulged in under certain headings. The work has the merit of originality and may be turned to for a few additional points not mentioned in other text books.

V. C. R.



Recreations of a Physician—By A. Stuart M. Chisholm, author of "The Independence of Chile." G. P. Putnam's Sons, New York and London, 1914. Price, \$2.00.

This work represents a splendid type of book for the leisure hours of a physician. It consists of ten essays on such subjects as Specialization, Physicians as Men of Letters, The Spirit of Medicine and on the Prevention of Disease. Under the subject of specialization the author points out that specialism tends to impoverish personality and that the tendency must be counteracted by suitable avocations, and mentions notable examples among illustrious medical men. In the chapter on Physicians as Men of Letters, a number of familiar names appear—among them Goldsmith, Keats, Lessing and Schiller and others, whom one does not ordinarily associate with medicine. The chapter on the Prevention of Disease is an excellent historical account of the great epidemics—the plague, small pox, et cetera, and of the first beginnings of preventive medicine down to the present. The Work of Pasteur is especially emphasized. Interesting bits of biography are inserted, such as a personal letter from Lister to Pasteur in 1874, and one from Tyndall to Pasteur in 1876.

The paucity of good literature from medical men at present is the occasion of frequent comment. It is highly desirable that genuine literary efforts be encouraged and not suppressed in any degree by an antiquated orthodoxy in medical ethics.

V. C. R.

**Infant Feeding.**—H. D. Chapin, New York (*Journal A. M. A.*, Oct. 3, 1914), criticizes some of the tendencies that have existed as regards infant feeding. He thinks that the family physician should familiarize himself with the principles of nutrition and normal method of handling children as well as those of the disturbed infant. It has been too generally believed by physicians that when the digestion of the child became normal and when there was a gain in weight, their work was done, but this is a mistake. Technical methods of preparing foods have been allowed to overshadow the preparation of scientific food and it is a waste of time, Chapin says, to employ in every-day work the often difficult methods of scientific research when simpler methods will suffice. The physician is called on to do the best he can under the conditions he meets, using the scientific principles on which animal nutrition has been found to be based. Understanding and using these correctly he may originate his own methods which may give as good results as more complicated ones. There has been too great a tendency to concentrate attention on a single point instead of taking the needed broader view. One time it was all bacteria, at another all chemistry, again feeding was to be mathematical and still later we have caloric feeding. In living bodies factors have to be taken into account which are not met with in the laboratory. The living animal membranes have powers of selection and the processes are not purely osmotic. The differences shown in animal experiments with foods of supposedly the same chemical composition and the same caloric value has been so striking as to warn us not to place too much dependence on the caloric value of food which is but a rough guide at the best. No mode of permanently altering the properties of the milk by food has been discovered and the power of selection of the organism extends to picking out for the offspring what is needed for it at each stage of its development. Attempts to base feedings on fats, proteins and carbohydrates are moves in the wrong direction. The foods for producing the best physical development of infants are readily prepared from milk, eggs, cereals and legumes by easily learned methods, altering but slightly their chemical integrity. It does not require much effort, Chapin says, for the physician to fit himself for infant feeding. He should become acquainted with the biologic principles of infancy and the properties of these food materials, and the latest scientific studies in nutrition point to more simplicity in the preparation of artificial food for infants. Too much manipulation with supposed caloric or chemical requirements in mind is, Chapin says, apt to ignore the biologic or vital elements that are essential.

### MEDICAL NEWS

**Doctor Crile to Visit the American Ambulance Hospital.**—Doctor Dubouchet, the head of the American Ambulance Hospital, has placed one division of that hospital, consisting of 150 beds, at the disposal of Doctor George W. Crile, Visiting Surgeon to Lakeside Hospital. The American Hospital was established by the faculty and board of governors of the American Hospital in Paris. Within an astonishingly short period after the declaration of war—between August 12 and September 1—this group of men with the unremitting coöperation and assistance of United States Ambassador, Myron T. Herrick, had converted the Lycée Pasteur at Nully into the "American Ambulance of Paris," and had made it one of the best equipped war hospitals in Europe. Within a fortnight of the inception of the plan some wards had been prepared, operating, sterilizing and anesthetizing rooms were ready for use and an X-ray department had been installed.

Doctor Crile will sail on December 30, taking with him an assistant surgeon, an anesthetist and operating room nurses. The final decision has not been made regarding the personnel of his party, with the exception of Doctor Samuel L. Ledbetter, Jr., Resident Surgeon at Lakeside Hospital; Miss Agatha Hodgins, anesthetist, and Miss Iva Davidson, a nurse, also of Lakeside Hospital.

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**Doctor Rudolph H. Kocher** has been appointed instructor in research medicine in the Hooper Foundation of Medical Research of the University of California, Berkeley.

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**Plans Are Practically Completed** for the construction of the Anthony N. Brady Memorial Laboratory of the Yale Medical School. The laboratory and administration building will be erected in the spring of 1915.

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**Doctor Frederick G. Novy**, professor of Bacteriology in the University of Michigan, lectured before the Science Club of the State Normal College at Ypsilanti, on November 23, on the foot and mouth disease which is now prevalent in Michigan.

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**The Convocation Week Meeting of Scientific Societies.**—The American Association for the Advancement of Science and the national scientific societies named below will meet at Philadelphia, during convocation week, beginning on December 28, 1914:

*American Association for the Advancement of Science.*—President, Doctor Charles W. Eliot, Harvard University; retiring president, Professor Edmund B. Wilson, Columbia University; permanent secretary, Doctor L. O. Howard, Smithsonian Institute, Washington, D. C.; general secretary, Professor William A. Worsham, Jr., State College of Agriculture, Athens, Ga.; secretary of the council, Mr. Henry Skinner, Academy of Natural Sciences, Logan Square, Philadelphia, Pa.

**Among the Forty-Six Various Section Meetings the Following Are Most Likely to be of Interest to Our Readers:**

*Section B—Physics.*—Vice-President, Professor Anthony Zeleny, University of Minnesota; secretary, Doctor W. J. Humphreys, U. S. Weather Bureau, Washington, D. C.

*Section C—Chemistry.*—Vice-President, Provost Edgar F. Smith, University of Pennsylvania; secretary, Doctor John Johnston, Geophysical Laboratory, Washington, D. C.

*Section E—Geology and Geography.*—Vice-President, Professor U. S. Grant, Northwestern University; secretary, Professor George F. Kay, University of Iowa.



*Section F—Zoology.*—Vice President, Professor Frank R. Lillie, University of Chicago; secretary, Professor Herbert V. Neal, Tufts College, Massachusetts.

*Section G—Botany.*—Vice-President, Doctor G. P. Clinton, Connecticut Agricultural Experiment Station; secretary, Professor W. J. V. Osterhout, Harvard University, Cambridge, Mass.

*Section H—Anthropology and Psychology.*—Vice-President, Doctor Clark Wissler, American Museum of Natural History; secretary, Professor George Grant MacCurdy, Yale University, New Haven, Conn.

*Section I—Social and Economic Science.*—Secretary, Seymour C. Loomis, 69 Church street, New Haven, Conn.

*Section K—Physiology and Experimental Medicine.*—Vice-President, Professor Richard Mills Pearce, University of Pennsylvania; secretary, Doctor Donald R. Hooker, Johns Hopkins Medical School, Baltimore, Md.

*Section L—Education.*—Vice-President, Professor Paul H. Hanus, Harvard University; secretary, Doctor Stuart A. Courtis, Liggett School, Detroit, Mich.

*Section M—Agriculture.*—Vice-President, Professor L. H. Bailey, Cornell University; secretary, Doctor E. W. Allen, U. S. Department of Agriculture, Washington, D. C.

*The American Physical Society.*—Convocation Week. President, Professor Ernest Merritt, Cornell University; secretary, Professor A. D. Cole, Ohio State University, Columbus, Ohio.

*The American Society of Naturalists.*—December 31. President, Professor Samuel F. Clarke, Williams College; secretary, Doctor Bradley M. Davis, University of Pennsylvania, Philadelphia, Pa.

*The American Society of Zoologists.*—December 29-31. President, Professor C. E. McClung, University of Pennsylvania; secretary, Doctor Caswell Grave, The Johns Hopkins University, Baltimore, Md.

*The Society of American Bacteriologists.*—December 29-31. President, Professor Charles E. Marshall, Massachusetts Agricultural College; secretary, Doctor A. Parker Hitchens, Glenolden, Pa.

*The Geological Society of America.*—December 29-31. President, Doctor George F. Becker, U. S. Geological Survey, Washington, D. C.; secretary, Doctor Edmund Otis Hovey, American Museum of Natural History, New York City.

*The Paleontological Society.*—December 29-31. President, Doctor Henry F. Osborn, American Museum of Natural History, New York City; secretary, Doctor R. S. Bassler, U. S. National Museum, Washington, D. C.

*The Botanical Society of America.*—December 29—January 1. President, Doctor A. S. Hitchcock, U. S. Department of Agriculture; secretary, Doctor George T. Moore, Botanical Garden, St. Louis, Mo.

*School Garden Association of America.*—December 29-30. President, Van Evrie Kilpatrick, 124 West 30th street, New York, N. Y.

*The American Microscopical Society.*—December 29. President, Professor Charles Brookover, Little Rock, Ark.; secretary, T. W. Galloway, James Millikin University, Decatur, Ill.

*The American Anthropological Association.*—December 28-31. President, Professor Roland B. Dixon, Harvard University; secretary, Professor George Grant MacCurdy, Yale University, New Haven, Conn.

*The American Psychological Association.*—December 30—January 1. President, Professor R. S. Woodworth, Columbia University; secretary, Professor R. M. Ogden, University of Tennessee, Nashville, Tenn.

*The Southern Society for Philosophy and Psychology.*—December 31—January 1. President, Professor John B. Watson, The Johns Hopkins University; secretary, Professor W. C. Ruediger, George Washington University, Washington, D. C.

## ST. LOUIS

*The American Physiological Society.*—December 28-30. President, Professor W. B. Cannon, Harvard Medical School, Boston, Mass.; secretary, Professor A. J. Carlson, University of Chicago, Chicago, Ill.

*The Association of American Anatomists.*—December 28-30. President, Professor G. Carl Huber, University of Michigan; secretary, Doctor Charles R. Stockard, Cornell University Medical School, New York City.

*The American Society of Biological Chemists.*—December 28-30. President, Professor Graham Lusk, Cornell University Medical School; secretary, Professor Philip A. Shaffer, Washington University Medical School, St. Louis, Mo.

*The Society for Pharmacology and Experimental Therapeutics.*—December 28-30. President, Doctor Torald Sollmann, Western Reserve University Medical School, Cleveland, Ohio; secretary, Doctor John Auer, Rockefeller Institute for Medical Research, New York City.

## PRINCETON

*The American Sociological Society.*—December 28-31. President, Professor E. A. Ross, University of Wisconsin; secretary, Professor Scott E. W. Bedford, University of Chicago, Chicago, Ill.

**The Annual Meeting of the Society of American Bacteriologists** will be held in Philadelphia, December 29, 30 and 31, 1914, under the presidency of Professor Charles E. Marshall. The session programs will be arranged as follows:

Tuesday, A. M. Systematic Bacteriology, H. A. Harding, Urbana, Ill.

Tuesday, P. M. Technique, G. F. Ruediger, La Salle, Ill.

Wednesday, A. M. Industrial Bacteriology, R. E. Buchanan, Ames, Iowa.

Wednesday, P. M. Sanitary Bacteriology.

Thursday, A. M. Infection and Immunity, J. A. Kolmer, Medical Department University of Pennsylvania, Philadelphia, Pa.

Thursday, P. M. Ventilation, C.-E. A. Winslow, 25 West 45th Street, New York City, N. Y.

On Thursday afternoon the session will be devoted to a symposium on ventilation, with Section K of the American Association for the Advancement of Science. Professor C.-E. A. Winslow has this program in charge. The local committee of arrangements consists of D. H. Bergey, Jos. Leidy, Jr., Jos. McFarland and A. Parker Hitchens, chairman. The secretary is A. Parker Hitchens, Glenolden, Pa.

**Radiography Benefits the Wounded.**—The eminent French physicist, Professor Ch. Fabry, of the Faculté des Sciences, Marseilles, is devoting himself to radiography for the benefit of the wounded in the war. He fears an exhaustion of the French supply of X-ray tubes and has written to an American friend, requesting that makers and dealers in such supplies should communicate with him at once, giving prices of their supplies and tubes for medical and surgical purposes.

**The University of Louvain** has accepted the offer of the Cambridge University to give the use of its libraries, laboratories and lecture rooms during the present crisis, without the payment of the usual fees, in order that the work of the Belgian University as a corporate body may be carried on without breach of continuity. Cambridge University has only 1,500 students, as against 3,500 last year, and other institutions have lost students in about the same proportion. The German universities expect about one-third the usual attendance.

**Professors Roentgen, Lenard and Behring** have each recently been reported to have repudiated the gold medals conferred on them by scientific



associations in Great Britain, and have donated them to the Red Cross or other relief work, and now it is said that the Hanbury medal has likewise been donated for relief work by its recipient, Doctor E. Schmidt, Professor of Pharmacology in Marburg.

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**Bone Grafting in Army.**—The Russian surgeon, Doctor Voronoff, who, with Doctor Alexis Carrel, discovered the method of bone grafting in the Rockefeller Institute for Medical Research in New York, today announced the first successful application of the method in the case of a wounded soldier at the Russian hospital in Bordeaux. The operation consisted of the transplantation of a piece of bone from a monkey's arm to replace a splinter carried away by a shell.

The soldier was suffering from paralysis, and two inches of bone was grafted into the arm with such success that the patient is now able to use the arm normally.

The Russian hospital henceforth will be devoted to this class of work, with a special staff appointed by Doctor Troussaint, Chief of the Army Medical Service, to assist Doctor Voronoff.

**Eminent French Surgeon is in a Prison in Westphalia.**—Doctor Albert Calmette, the eminent scientist and Director of the Pasteur Institute at Lille, who has been acting as one of the chiefs of the medical service of the army, has been missing for some time. It is now reported that he is a prisoner of war at Münster, Westphalia.

Doctor Calmette is a brother of the late editor of *The Figaro*, Gaston Calmette.

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**Machine-Made War and Its Effects.**—Some curious and interesting peculiarities of the European war as seen from the standpoint of the surgeon in the field are presented by *The International Journal of Surgery*. For one thing, the members of the uniformed medical staff now can do, and are expected to do, little more for the wounded than to give them "first aid" as soon as a shifting of the conflict makes approach to them, not safe, but something less than next to certain death. After hasty bandaging, the task of the field surgeons is chiefly to get the victims back to properly equipped hospitals far in the rear of the firing line, and once there, of course, the treatment of the wounded soldier is exactly that of any other patient.

Practically no operating is attempted on the battlefield, experience having taught that the results are usually worse than to let nature do what she can until really effective assistance can be given. Even in the best of the military hospitals, however, it has been noticed that the soldiers die with terrible frequency from injuries that in ordinary circumstances would be considered trivial. The explanation of that is the state of semi-starvation and intense weariness in which the soldier often was when his wound was received—a condition that much reduces his powers of resistance and recuperation.

As expressed by this authority, "modern machine-made war is more than the human frame can endure." The same thing has been said in other words by many narrators of experiences at the front, and it explains why, except in cases of absolute necessity, men are never kept long in the trenches, but are relieved as regularly as and more often than are the "shifts" in a factory that is worked day and night.

The only good word said for modern war in the article under consideration is that amputations of arms and legs are not as numerous as formerly, asepsis rendering it possible to save many limbs that once would have been sacrificed as the only means of saving life.

**American Surgeon Tells of Terrible Wounds Made by the So-called "Humane Bullet."**—Doctor Joseph Pierre Hoguet, one of the American surgeons who gave his services to the American Ambulance

Hospital in Paris, returned recently, on the Lusitania, to assist the American Hospital Committee in raising funds which are badly needed to continue the great work of relief to the wounded.

There are 400 beds in the American Hospital, but more are needed. It costs \$1.93 a day to maintain a bed, and there is only enough money available now to last three months. There is a great need for anti-tetanic serum, ether, chloroform, iodine, gauze, cotton, and adhesive plaster. On an average it costs about \$1,000 a day to keep the hospital running.

"Don't get the idea for a moment," Doctor Hoguet said, "that there is such a thing as a humane bullet. The large calibred, slow, lead bullet, which tore holes in men's bodies in the civil war has been done away with. Humanitarians of all nations got together then and agreed on a small calibred pointed bullet with a steel jacket. This new bullet is now in general use. But it isn't humane.

"If we could only get the wounded soldiers immediately after they have been injured," said Doctor Hoguet, "we would be better able to cope with the injuries. Under the conditions, however, it requires days or weeks to transport the seriously wounded to Paris. In war time the cannon and the food come first. The wounded are sidetracked for the cannon. I tell you, it is shocking, but the wounded man does not count for much."

"If the wounds were fresh when the men came to the American Hospital," the surgeon said, "you might expect some fancy surgical work. But you can't get fancy work on infected wounds. Nearly every case which came to us while I was in the hospital had been infected. Why, soldiers came to us who had not changed their clothes since the day of mobilization. Bullets and shrapnel had carried the filth into their bodies and the cursory dressing by the doctors on the battlefields had not cleansed the wounds."

The doctor was asked to tell of individual cases which had impressed him particularly. All he had to do was to refer to the wonderful X-ray photographs he brought with him. In each picture there was a separate story.

"Here is a picture of a man," he said, holding up a plate blotched with large and small white specs, "who came to us with seventy-five wounds in his body. He is a French artilleryman, 41 years old. He also suffered from aphasia, and it took several weeks before we could get the complete story from him. Strange to say, his wounds were not inflicted by the Germans. He had put his own shoulders to a wheel of a cannon and had run the cannon over an unexploded shell lying on the ground. There was an explosion which killed a number of horses and demolished the cannon and the shell container. Many of the wounds this man got were superficial, but he suffered a compound fracture of the skull and lost one eye. I took out a bone button from his head and was able to insert a finger in the lobe of the brain. A rubber tube was inserted to drain the head wounds. He was conscious most of the time and was getting along fairly well when I left Paris."

All the soldiers in the hospital would remember the day, Doctor Hoguet said, when a wounded Frenchman was awarded the Legion of Honor medal.

"This soldier was the worst wounded man I saw," said the surgeon. "He certainly was a brave fellow. He was a corporal and had charge of a unit of artillery. A shell took off a side of his face, including an eye. Other eye-witnesses told me that this man refused to give up his command in spite of his injury. He sat down near his cannon and continued to give orders to reload and fire. After half an hour a superior officer ordered him removed from the field. Two stretcher-bearers carried him away, but a shell came along and killed the two bearers and practically tore the wounded corporal's legs away. He was awfully mangled and how he ever lived I cannot understand.



"There was little we could do, of course, other than alleviate his pains. When the military authorities heard of his case they investigated

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**Doctor Emile Reymond**, the distinguished French surgeon and Senator of the Department of the Loire, has been killed while reconnoitering in an aeroplane above the German lines. Doctor Reymond was born in 1865, the son of the eminent engineer, Francis Reymond.

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**The Newly Founded University** at Frankfurt a. M. has been opened as planned, having enrolled Edinger, Ehrlich, Embden, B. Fischer, Göppert, Herxheimer, Neisser, Rehn and others. Kaiser Wilhelm is said to have signed the statutes of the university on the historic date, August 1. Austria-Hungary has also just founded a new university, the fifth in the empire. It is located at Presburg, in Hungary, about 40 miles east of Vienna. It was inaugurated with simple ceremonies on October 4.

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**Mr. A. Fleck**, Demonstrator at the University of Glasgow, has been appointed physical chemist to the Glasgow Radium Committee, established to administer a large fund collected in the city for the purpose of acquiring and distributing radium for therapeutic purposes. A radio-metric laboratory, under the auspices of the committee, has been fitted up at the university.

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**Professors Waldeyer, Orth** and others have added their protests to that of Professors Foerster and Verworn against the action of Professors von Behring, Roentgen and others in melting down the medals and renouncing the honors conferred upon them by various scientific bodies in Great Britain.

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**The Deaths of Scientific Men** who had been with the German army at the front are announced as follows: Doctor R. Stumpf, Docent and First Assistant in the Pathological Institute of the University of Breslau; Doctor Franz Velisek, Professor of Mathematics in the Technical Institute at Prague; Doctor G. Paur, Docent for Statistics in the Royal Academy at Posen; Doctor Franz Marshall, Director of the Experimental Laboratory of the Agricultural Institute of the University of Halle; Doctor Constantin Guillemaup, Docent in Geology in the Technical School at Aix, and Doctor Oswald Loeb, Docent for Pharmacology in the University of Göttingen.

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**Doctor Rudolf Emmerich**, Professor of Hygiene and Bacteriology in the University of Munich, has died at the age of sixty-two years.

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JAN 28 1915

J. F. B.

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THE CLEVELAND MEDICAL JOURNAL

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